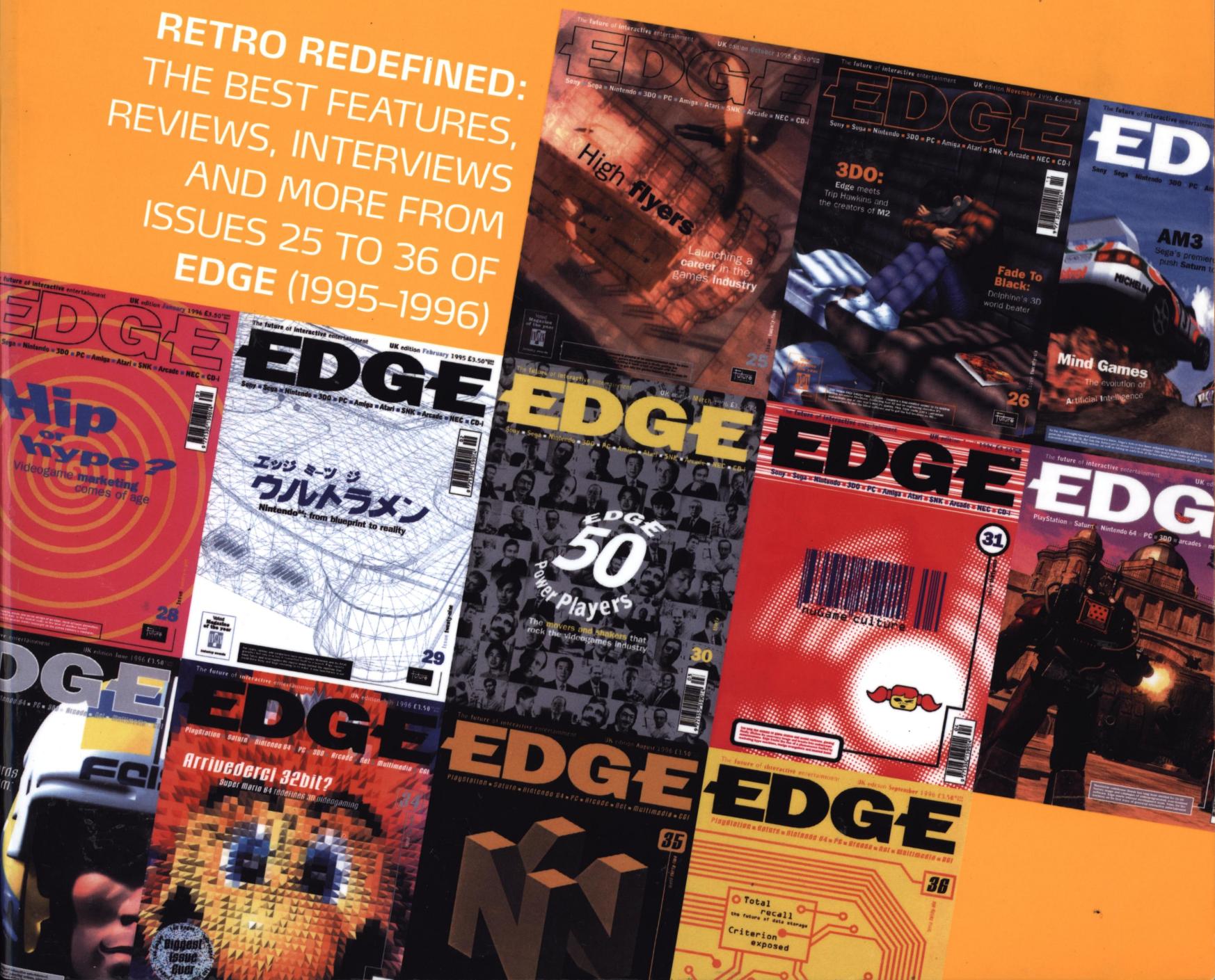
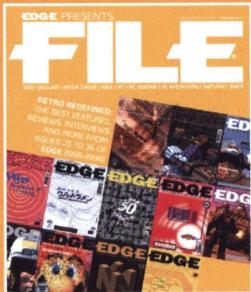


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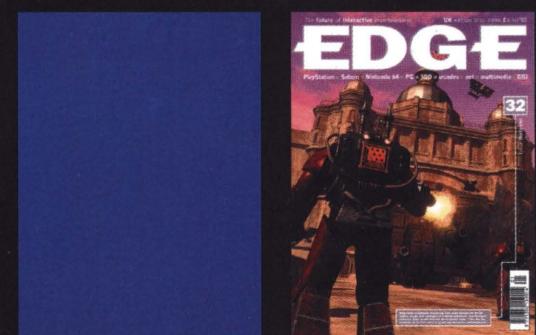
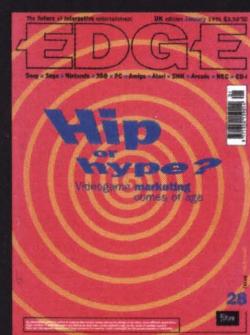
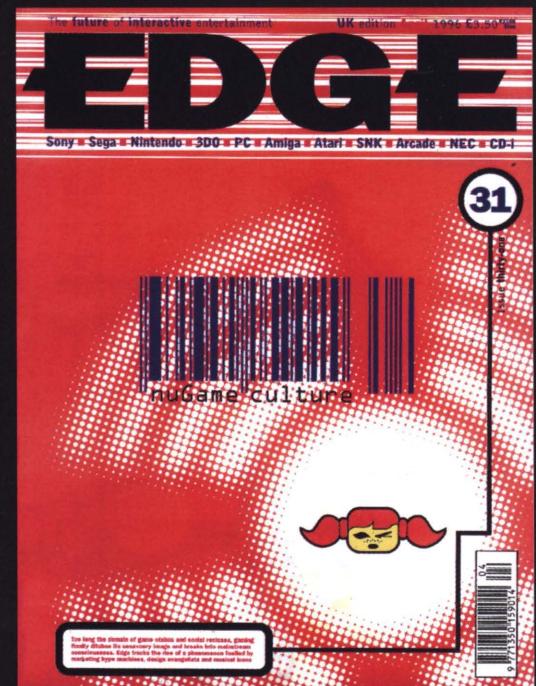
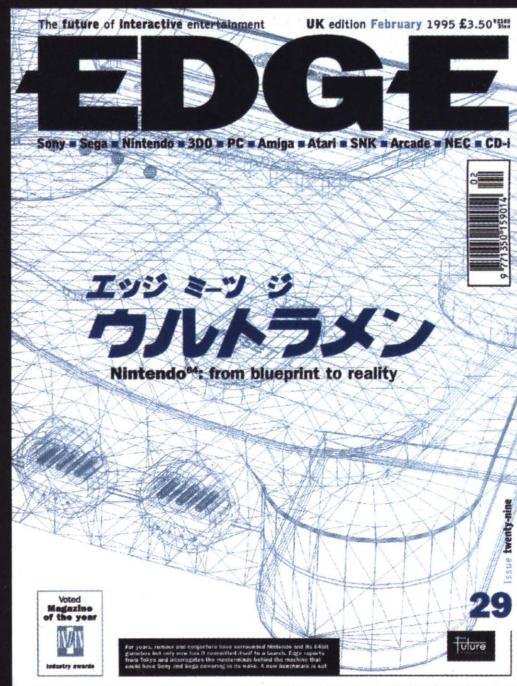
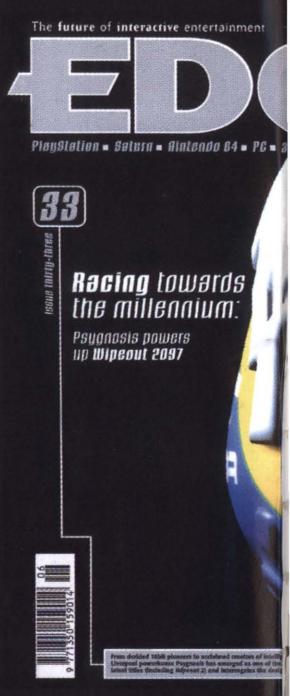
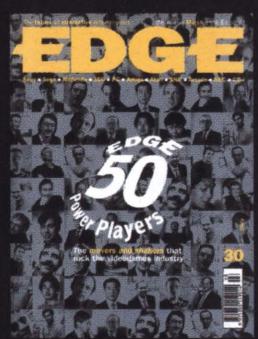
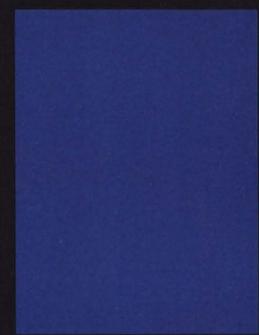
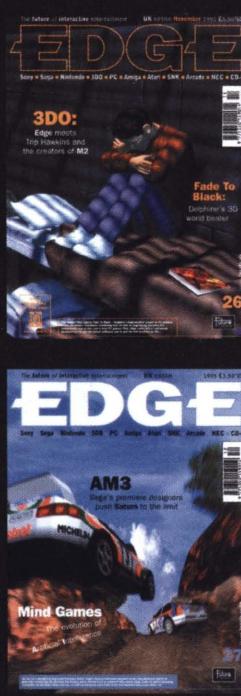
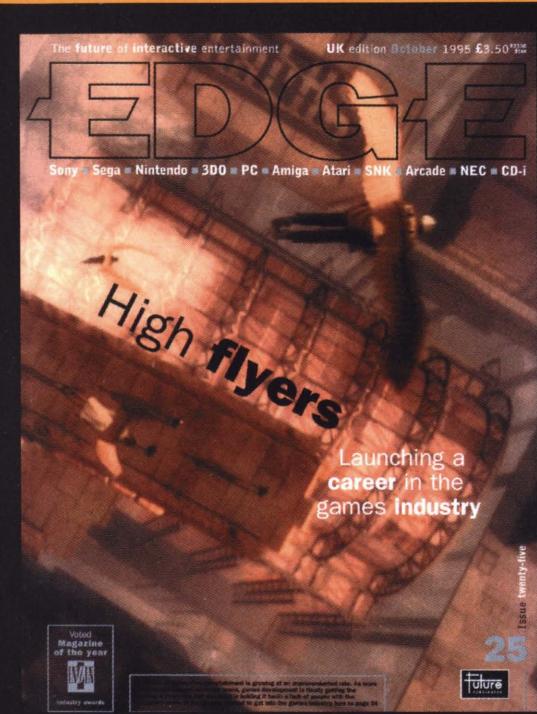






But what of Sega? PC gaming? The internet? And arcades? Issues 25 to 36 also featured plenty of all that good stuff. And Tom Zito, too... 





EDGE PRESENTS

FILE

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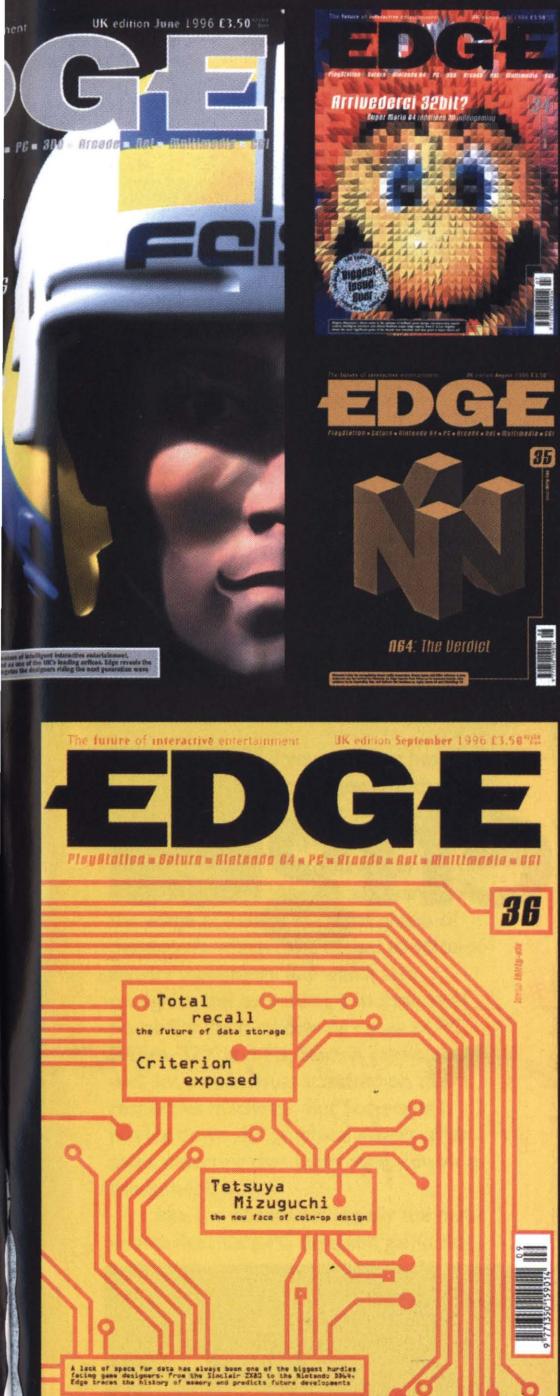
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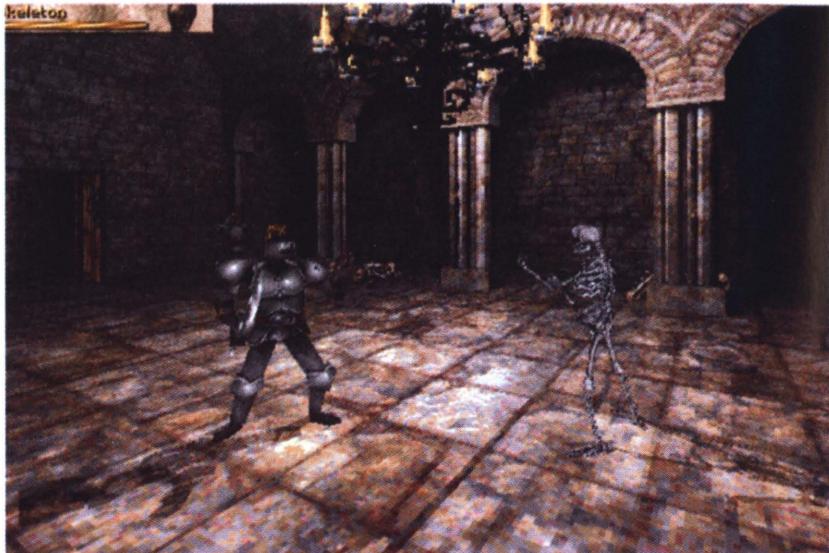
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Into The Shadows (above), Vertigo (below) and Amok



Scavenger

Los Angeles developer Scavenger may not be a household name just yet, but it's working on it. **Edge** meets a company with genuine pride in its work



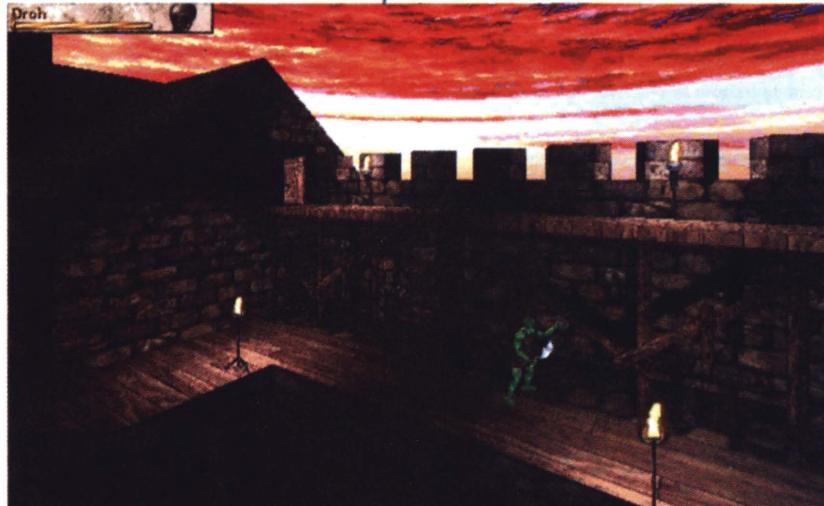


If you've never heard of Scavenger, the chances are that you will do soon, whatever platform you own. Scavenger is a Los Angeles software firm on the verge of joining that elite group of developers which have access to state-of-the-art technology but which also recognise the overriding importance of playability. Its forthcoming range of PC, Saturn, 32X and PlayStation games could well set a new visual standard on their respective machines. But Scavenger is playing down the graphical aspect of its titles, asserting that what really counts is the gameplay.

Into The Shadows is initially the most impressive. It's a PC dungeon game that, with its realistic scenery, breathtaking lighting effects and stunning character animation, could quite easily pass as a pre-rendered graphical demo.

In fact, until fairly recently, it was little more than a graphical demo. 'It started off as being a set of technologies for the PC,' recalls managing director **Daniel Small**. 'It wasn't decided that it was going to be a dungeon game until about nine months ago. That's when the programming tools were ready to build content, and only then did we decide what we wanted to do.'

Despite Scavenger's emphasis on gameplay, it's *Into The Shadows*' technical achievements that strike you first. Running fullscreen in SVGA on a high-end Pentium, the 256-colour, true-3D, texture-mapped polygon environment moves at over 25 frames per second and boasts realtime lighting and motion-captured characters.



'You don't get many breakthroughs in 3D lighting. The important thing is who can come up with the tricks to make them work'

Daniel Small

This graphical sophistication would be impossible without Scavenger's Triton Advanced Physics Engine, which it has been working on for the past two years. It's a result of the company's unconventional approach to technical development. 'We'll pick a specific technology and put a team together to go after it,' explains Small. 'The team picks a name for itself to give it a sense of identity and then sets out after that technology.'

Developing a fast graphics engine was the responsibility of one such team (which includes some of the famous Scandinavian demo coders who pushed the Amiga so hard in its early days). Small sees this modular, co-operative method as the way forward, citing the music industry as an analogy: the individual teams are bands sharing studios, and Scavenger the publisher is the record label.

All of the surfaces in *Into the Shadows* are made up of textured polygons (top). An incandescent sky provides a dramatic backdrop (above). Realtime lighting casts shadows through this portcullis (left)

Raw speed in a graphics engine is nothing new, but Scavenger's 3D artists have done the technology justice by designing some stunning environments for *Into The Shadows*. The rooms have a truly epic scale, setting the scene for additional effects and providing an atmospheric foundation for the game itself. And Triton caters for perspective texture mapping, which gives the rooms even more depth.

But arguably more important than Triton is RealLight, Scavenger's realtime 3D lighting routine. 'We know all the algorithms,' claims Small. 'To tell you the truth, most of them are public domain and are readily available anyway – you don't get

too many breakthroughs in 3D lighting technology on a daily basis. The important thing is who can come up with the tricks to make them work. And we're pushing as far as we can go.'

Into The Shadows is primarily a fighting game – an interesting choice of genre considering all the effort that has gone into the scenery. However, there is a significant exploration element involved – the player has to collect objects and discover secrets as he moves around the castle. And Scavenger has gone to the same lengths to make the combat sections attractive and realistic as it has with the backgrounds. To create the characters' movements, the firm enlisted the help of a Polhemus motion-tracking system, which has had considerable benefits for naturalistic movement – seeing ranks of belligerent skeletons and ghouls marching towards you in SVGA is a jawdropping experience.

Scavenger is

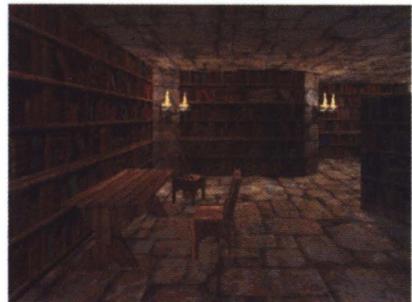
determined that none of its games will ever appear on other platforms. Small also insists that the company will never license its engine: 'Half the world is going toward using other people's engines, and only a few people are creating engines and developing technologies. We've been working on most of our technologies for two to three years now. Everybody here wants to make an original. We're not into the porting idea.'

Although *Into The Shadows* will only appear on the PC, both Saturn and 32X



'Half the world is going towards using other people's engines, and only a few people are creating engines. Everybody here wants to make an original. We're not into the porting idea'

Daniel Small



Scavenger's 3D artists have excelled themselves (top). Perspective mapping is particularly evident here (above)



Every character in *Into The Shadows* was modelled using a Polhemus motion-capture system, which has had impressive results



owners will have their own innovative and visually outstanding titles. *Vertigo*, a pure 3D racing game running in 32,000 colours at 30fps, is one of a pair of games scheduled to appear on the Saturn this year. Scavenger believes that what distinguishes it from the plethora of other racers is its 3D collision system, combined with fast, varied gameplay. Although collision is a fundamental part of all 3D action games, Scavenger reckons it is ahead of the competition in this area, having taken account of every possible situation to create a truly immersive gameworld.

The other Saturn title is *Amok*. A two-player action racing game that initially

looks similar to *Total Eclipse* on the 3DO, it offers a blend of slick graphics and intense splitscreen racing which seems certain to captivate Saturn audiences when it is released later this year. It also boasts landscape-altering algorithms the like of which have only previously been seen in Bullfrog games like *Magic Carpet*.

'For most companies the landscape is static,' observes Small. 'Some firms replace one bitmap with another, but that's just too easy. We have our BSpace algorithm which allows us to affect and permanently alter the gaming environment and create a more involving game.'

Scavenger's Sega background (its internal label Zyrinx developed the hugely playable Mega Drive *Thrust* clone *Sub-Terrania*) is evident in the fact that it is also working on a number of 32X titles. 'The 32X is a great machine,' asserts Small, 'but it just didn't happen.'

Heavy Machinery is a homegrown racing effort, and *X-MEN* will be 'the most beautiful thing you've ever seen', according to Small. Scavenger is just waiting for the finished artwork from Sega before it can



The BSpace algorithm used by Scavenger in *Amok* allows the landscape to be warped according to the player's actions



'We're not going to work with the PlayStation the way everybody else has. Every machine can do something it's not supposed to, and we now feel that we have the tricks to exploit this in the PlayStation'

Daniel Small

Amok's twoplayer mode is what Saturn owners will be looking forward to. The head-to-head action can get pretty hectic



Amok boasts a wide variety of enemies. Like the scenery, they have a tendency to pixelate when very close to the camera

complete the game, but it claims that it has attracted one of Sega's biggest ever spends, with the Japanese company lavishing \$2.2 million on the dual-platform development.

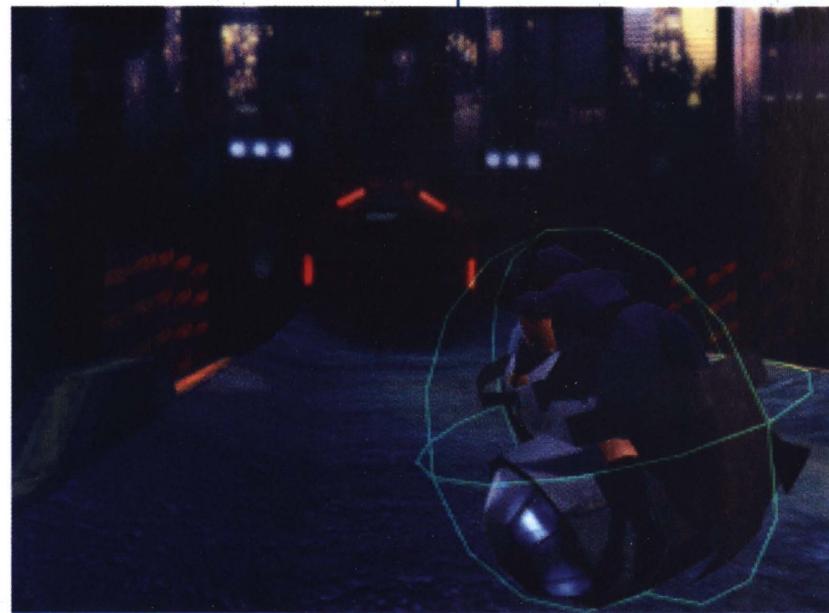
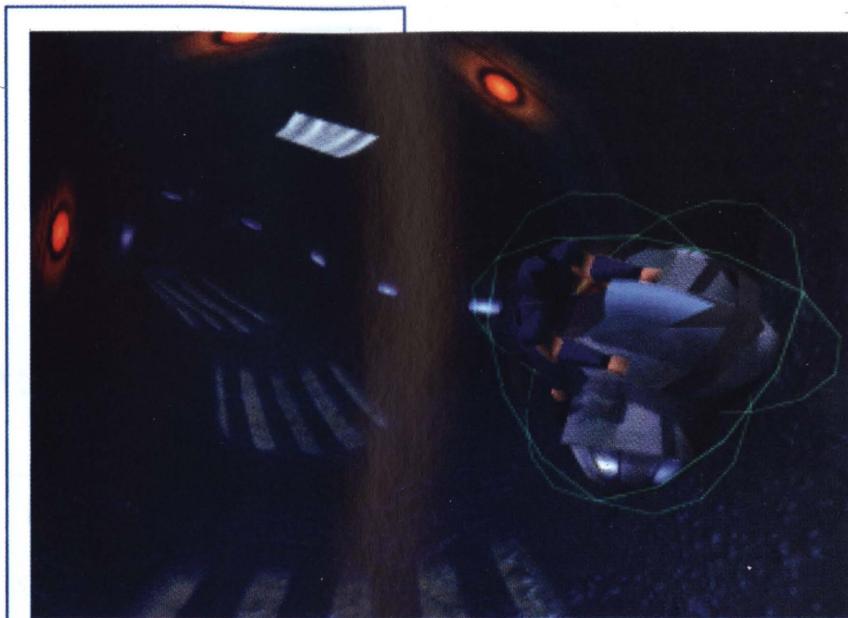
Although Scavenger doesn't yet possess any development PlayStations, it has been actively preparing for the arrival of Sony's much-heralded machine on the market. 'We're not going to work with the PlayStation the way everybody else has,' claims Small. 'We're going for NURB-based development which will allow us to create faster and more complex characters using hundreds of polygons rather than bitmaps. Every machine can do something it's not supposed to, and we now feel that we have the tricks to exploit this in the PlayStation.'



Although this smacks of hubris, the technical ability Scavenger has shown on other formats it has been closely involved with indicates that it's not an idle boast. 'All the machines are the same to us,' shrugs Small. 'It's just a question of what game you're going to build. If Nintendo ever give us something, we'll work on that too.'

Scavenger's philosophy often seems at odds with that of other 'next generation' developers, many of whom appear to have taken an oath of allegiance to non-interaction, concentrating on pre-rendered graphics and FMV rather than genuine gameplay. 'We're basically taking the 8bit games and making them 32bit. That's all we're doing,' claims Small.

He points out that there are currently over 400 titles in development for the PlayStation. 'For publishers it's quantity, quantity, quantity. [But] just because you can write a 3D display routine doesn't mean you can make a 3D game.'



With their 32,000 colours, you'll often find yourself admiring the spectacular backdrops in *Vertigo*. Belting toward a tunnel (above)

What is worrying for a relatively small company like Scavenger is that, although it now publishes its own titles, if it comes to an all-out marketing battle against the big boys, its games could quite easily disappear without trace.

But despite that risk, the company is determined not to be seduced into creating more commercial, glitzier and shallower games. Its coders are agreed that

'There are people in this office for 24 hours a day, seven days a week. It's a lifestyle. This isn't a job. It's in people. It's their life. You don't do this kind of work if it's not your life'

Daniel Small



Blast through the inside of a torus at 30fps in *Vertigo* (top). *Heavy Machinery* is one of Scavenger's two 32X titles (above)

it's the quality of the product that counts, not the bottom line on the balance sheet. 'Most of us care very little about our sales,' says Small. 'As long as our friends and everyone in the development community goes, "That's cool!", we're happy.'

Although that attitude may seem somewhat naive, it's refreshing in this era of hard-nosed commercialism to see a company that genuinely cares about its products. Scavenger has not only produced some of the most advanced technology available in the videogames world today, but it is also committed to producing fast, playable games.

Daniel Small signs off: 'There are people in this office for 24 hours a day, seven days a week. It's a lifestyle. This isn't a job. It's in people. It's their life. You don't do this kind of work if it's not your life. We were fighting to play *Vertigo* this weekend.'

It's this level of dedication to its craft which makes Scavenger definitely a company worth watching.

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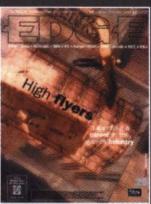
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The job game



Thanks to the introduction of a new wave of consoles demanding higher fidelity content and an awful lot more of it, the videogame industry faces a staffing crisis, so there's never been a better time to join up. (And this will never happen again in the future, will it?) Some advice, then, to those who want in...



Hopeful parents

High flyers: careers in the games industry

For many gamefans, the prospect of actually being a part of the interactive entertainment industry is an incredibly seductive one. But what does it take to fulfil that dream? **Edge** goes behind the job advertisements to find out how videogames recruitment works



The videogames industry is going through a boom time at the moment. And, as you might expect in any thriving field, this means that there's a wealth of employment opportunities available. But, despite the plethora of recruitment ads which appear in magazines such as **Edge**, anyone trying to get a job in the games industry for the first time will discover that it's more difficult than it seems. According to market forces, people are a scarce commodity. But if this is the case, why is it so hard to break in? Has the games industry become a closed shop resulting in companies spending most of their time poaching talent from each other?

The games industry is in fact currently in the grip of a skills crisis. This begs two questions:

how did this situation come to pass; and how does someone who wants to work in the field make the most of it? The state of the games industry today is derived from a set of circumstances that have arisen in the last decade. This not only owes a great deal to the influence of big business and big money but is also largely a result of the games industry's own success.

The games

industry was built on the backs of enthusiasts. People like Jeff Minter, Jez San and David Braben owned their own equipment, worked from home, taught themselves the skills they needed to write games, and published for straight royalty payments. At that time, development was still crude and small-scale, but many of today's

big-name developers grew out of this period, raising the capital to set up full-time from payments for completed games.

This spurt of growth was due to two reasons. First, compared with other industries – for example, the film industry, which is

The industry was built on the backs of enthusiasts who worked from home, taught themselves the skills they needed and published for straight royalty payments

similar in many respects – the games industry had very few production overheads. The cost of paying the wages of an extra programmer would hardly go far towards the expense of location or studio shooting. But despite

The job game

these low overheads, the returns were considerable.

The second reason was the boom in the medium itself. Cheap home computers, the attractiveness and playability of many of the early games, and support from new hardware, all fuelled by the increased level of

A key factor affecting the job market is restricted supply. The accelerated expansion of the games industry does not allow a breathing space to train new people

games product available, served to increase consumer demand.

The result was a games industry gold rush, which continues today. In the last five years, companies like Philips, Time Warner, BMG and Sony have realised that if they want a slice of the lucrative interactive entertainment industry pie, they should act sooner rather than later – if they wait even a few years, it could be too late. These big players saw the opportunity to come in on the ground floor of that very rare thing, a new sector of the entertainment industry. All had the cash and the political will to do so, and all were spurred on by the potential for big profits and the fear that if they didn't seize the opportunity, their rivals would.

What these multinational firms had in common were deep pockets. The result was a huge influx of capital into the industry. This cash has created a bonanza for smaller development companies – in the same way that, say, a car factory provides a livelihood for hundreds of ancillary component manufacturers. And as these developers grow, they need more staff. This is the artificially inflated market that today's jobhunters find themselves in.

But there's another key factor affecting the recruitment market, and that's restricted supply. Videogames development is being asked to mature from a relatively small-scale industry into a global, capital-intensive one. As the

people who joined at the beginning naturally move up the hierarchy, there simply aren't enough of the right people to take their place. Instead, programmers with one project under their belt become project leaders, project leaders become development managers, and people with no experience in the industry at all are hired to make up the numbers. One thing that the accelerated expansion of the games industry does not allow is any breathing space to train new people.

Faced with the opportunity of pulling a big contract, many companies find themselves in the position of having to hire a large number of people just to be able to perform the necessary work for that specific contract. In the recent past, both Rare and Psygnosis, for example, have been faced with this

problem. If big names like Nintendo and Sony are lining up at your door to sign deals, it's hard to turn them away solely because the company isn't large enough to take on the contract. Whether it's advisable or not, many companies enter into 'hiring frenzies' whereby it's not unusual for them to double in size in the space of 12 months.

Given this situation, it's not difficult to see where the demand for skills comes from, and it means that there are some unbeatable opportunities if you know where to look. Companies embarking on a financed expansion desperately need people, and they need them as soon as possible to start fulfilling the contracts that are available. Therefore, if you have experience in the industry already, you are a rare and increasingly valuable commodity, and are in sufficient demand for

CASE STUDY 1

Serge Plagnol

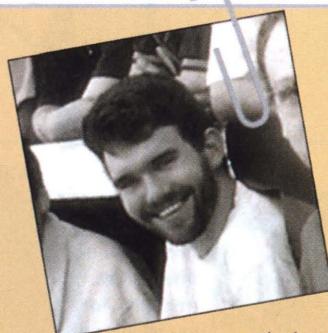
Job: Producer/lead programmer

Company: Adeline Software

My first encounter with a computer was at age ten. My parents' friends had a TRS-80, and it took me two days to copy a *Star Trek* program in BASIC out of a magazine. When I tried running it, it crashed. According to my parents' friend, it was the buggiest BASIC program ever. The game was boring anyway. But at the end of two weeks I knew how to program basic things.

The next year I bought a Sinclair ZX81. I haven't stopped programming since. When I was 14, I met Frédéric Raynal at his father's computer store. We soon became good friends and I started skipping classes to go to his 'office' in the attic of his father's store, which was full of all kinds of computers. We spent our lives on those machines.

After graduating from school, I did two years of maths and physics before joining INSA Toulouse, a French engineering school, for three years. There I specialised in industrial data processing. I met up with Frédéric again for the summer (he was at Infogrames then) and



worked on the end of *Alone In The Dark*, writing sound drivers. After my second year I joined Frédéric again, but this time at Adeline. We then worked on *Little Big Adventure*, and I took care of the sound effects again.

For my last year, I went to the University Of Surrey to do an MSc in Signal Processing And Machine Intelligence. In December 1993 I started to work part-time for Adeline. In June 1993 I graduated from both INSA and Surrey University and joined Adeline full-time, still working mainly on sound for *Little Big Adventure*. I am now producer and lead programmer on one of Adeline's two new games, called *Time Commando*. Today, aged 24 and after 14 years, I still love programming as much as I did that first time in 1980.



CASE STUDY 2

Julian Rignall

Job: Director of design and product acquisition

Company: Virgin IE

In the mid '80s I'd become a bit of a hero at my local arcade. When I won the 1983 Computer And Video Games Arcade Championship, I knew I wanted to get into the games industry, but didn't have a clue how. Things were looking grim when, thanks to all the time I had spent practising videogames when I should have been in school, I ended up on the dole. I wrote a load of playing tips and sent them off to different magazines. A few months later I joined publishing company Newsfield, which was starting up a C64 equivalent of *Crash* called *ZZAP! 64*. I worked at *ZZAP! 64* for a couple of years before moving on to EMAP, where I worked on *Computer & Video Games* and launched *Mean Machines*, *Nintendo Magazine System* and *Sega Magazine*, among other things.

At the start of 1994, I joined Virgin Interactive Entertainment in the US and became director of design and product acquisition. This means evaluating all new products submitted to VIE, as well as assessing all products in development. If I didn't have ten



years' experience in the industry and hadn't reviewed thousands of games, I certainly wouldn't be able to do this job.

If you want to get into the industry, the thing to remember is that, even if qualifications aren't strictly necessary (although they do show that you've got a brain), raw talent and a very high degree of enthusiasm are. You really have to want to work in the games business, because getting in is very hard work. The software industry doesn't owe you a living, and nobody will employ you unless you've got something to offer.

Start by contacting the right people. QA managers are a good place to begin. These guys are responsible for running a company's test department, and they often have positions for product testers. It's ground-level

stuff, but, especially if you have no qualifications, it's a great entry position. Acquisitions managers, magazine editors, lead designers, art directors, heads of animation and chief programmers are also well worth contacting, depending on what job you actually want to do. Get together your very best designs/reviews/demos/art/whatever and send them off. Don't forget: the better the quality of the materials you're submitting, the greater your chances of being noticed. There's nothing more offputting than a badly written, misspelled document with coffee stains on it. The ideas it contains may be sound, but it gives the impression that you're lazy and unprofessional. Ideas that look good and sound good will get people interested in you.

If you're lucky enough to get feedback from people, accept it gracefully. You might not agree with what you hear, but don't forget that you're talking to someone with experience. They know stuff you don't, so listen to what they're saying and think about it. And finally, don't get put off by failure. Just because one company can't see that you're the Next Big Thing doesn't mean that others won't welcome you with open arms. As I said, you have to work hard to get a lucky break.

companies to start bidding for your services. The result is huge salaries and a raft of perks like share options and the like.

Paradoxically, new companies tend to pay higher salaries for key people than established ones. Former employees of some of the more established software houses often find that the reputation associated with their position, and the experience they've gained there, allows them to take advantage of the vast investment possibilities on offer to set up a company of their own, or to take on business partners to do so. Naturally their investors insist that the company they are financing should only strive for excellence. It's the rallying cry of many of these start-ups that they will hire only the best people, and only produce the best games. Indeed, if you plan to set up a games company, that's the only way you can go about it.

The problem then is that, flush with investors' cash, the new company has to fulfil its promise and hire top-flight staff. Convincing these people to take a risk on an unproven firm obviously requires, among other things, a lot of money. This is why some of the highest salaries you'll see in advertisements are from companies you might never have even heard of before.

Incidentally, not all recruitment advertisements refer to specific positions, or even specific companies. They're often placed by recruitment agencies, who simply offer general jobs and ballpark figures as a means of getting into contact with potential employees. When applying to an agency, therefore, you may well find that the job offered is not what you had in mind at all.

But even so, the cards are stacked heavily in your favour. If you have industry experience, work for a good company, and are willing to take the risk of making a lateral move, it's a jobseeker's market. You've got the

The cards are stacked in your favour. If you have experience, work for a good company and are willing to risk making a lateral move, it's a jobseeker's market

opportunity to earn large sums of money and achieve high status in a much shorter time than you could in other, older industries.

If you're not in the industry already but are trying to break in, the story is somewhat different. In

The job game

that case, you're competing with a much larger employment market, one that hasn't felt the effects of the boom. The demand for new people without previous experience is there, but there is also a plentiful supply to meet that demand. Unless you have some related non-industry experience, you'll find it very difficult to get that initial break. This seems to back up the commonly held view that you're fighting against a closed shop. But this isn't necessarily the case. The opportunities can be grasped if the pitch is made at the right level. If you want to get into the industry, you can, and if you do so now you may very soon find yourself in a position of experience and authority, in a field that seems to just keep on growing.

Although the industry is geared towards the people with the skills and experience now, the growth in the labour market means that the number of positions available cannot solely be filled by the people already there. Companies have to look for new people, which is obviously to your advantage if you're looking for a first job. However, what stands in your way is the fact that the games industry is a very attractive field to work in, and there's no shortage of people willing to move into it, either straight from university or from other sectors such as design or software engineering. Companies can therefore afford to be selective.

The games industry is a very attractive field to work in, and there's no shortage of people willing to move into it. Companies can therefore afford to be selective

On the surface, many firms require very high qualifications before they'll even consider you for a job. There are two ways to tackle this hurdle: either you can ensure you meet these requirements, or you can offer the company something that makes up for the deficit between your paper qualifications and their needs.

CASE STUDY 3

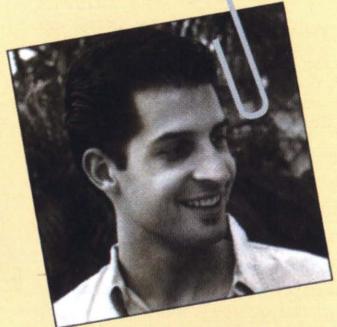
Dave Perry

Job: Company president

Company: Shiny Entertainment

I started in school writing for videogame books before WH Smith started to stock ZX81 games. These books earned me around \$50 per program listing, and for each book I would earn around \$600. Finally I was offered my own book, which made me around \$15,000. I dumped school and took a job at Mikro Gen for a whopping \$5000 per year. This lasted for one year, after which I had a raise to \$18,000. Finally I left for Probe, at \$50,000 a year. From then on your salary rises according to the quality of the games you produce (it can easily go down too). Nowadays, a games programmer earns between \$50,000-\$150,000, depending upon experience.

At Mikro Gen I worked with a very talented programmer called Chris Hinsley (of Taos fame), who taught me the ways



of assembly language and good game structure. That is my advice: start under somebody's wing, accept any salary offered, and if anything rubs off you will be well on your way in no time.

How do you get your foot in the door? Get a crappy old PC, a shareware C compiler, a maths degree and impress me with a demo (no, not a game, a 3D demo, maybe a car rotating or something). Invest some time, buy some books, and the doors will swing open. But it's not easy or everybody would be doing it.



The first approach is obviously sounder, and there are a number of training options you can take. Art colleges are becoming wise to the impact of packages such as Alias, Wavefront and SoftImage on design. Many courses offer experience in these packages, and some even provide modules solely devoted to 3D modelling and animation. But even without these packages, a straight design degree often holds a lot of clout,

especially if it's commercially oriented (you'd have a job getting the right training on a fine art course).

On the technical side, almost every university now offers some form of software design qualification. A few universities have even mooted setting up courses in computer games, but so far nothing concrete has happened. In choosing a degree, therefore, there are no extra things you should look for that any decent careers officer couldn't make you aware of.

If you are already on a software degree course, however,

there are a number of topics you can make sure you cover. Programming methodology is one, and training in software design principles another. Both of these, although rarely a requirement now, will certainly become more important as the next-generation machines come on-line and as team sizes continue to grow. Similarly, any practical group project will be of interest. Graphics courses are important but tend not to go into anything in great depth, so evidence that you have pursued this topic further will serve you well.

None of this will be of much use if you aren't on a degree course, or if you don't have a degree. In this case, you should remember one thing: whatever a company's stated requirements, never give up if you don't meet them. There are always ways around them.

Many of the first games designers did not have a formal qualification when they started to write games, because, quite simply, they didn't need them. These

people are now the ones in charge. As the industry matures, it's trying to move into line with other industries, which means becoming more professional and consequently more set in its ways. Having learned that good programming practice benefits the software life cycle in terms of time and resources, these companies are buying proper training – although, to their credit, they recognise that there is still a place for the self-taught designer.

But it is harder to get a job without qualifications, and to do so you have to be prepared to put in the extra effort required. Most important is enthusiasm: enthusiasm for the industry, for the product, for the work itself. As Codemasters' **Andrew Graham** points out: 'Companies will always want people who have always enjoyed playing games.' (Although, significantly, he adds, 'If you have the opportunity, you should also take a degree, as qualifications are becoming more important.')

If you attend an interview and solemnly sit talking about how your course helped promote ADA awareness, you'll win few friends.

If, on the other hand, you start waving your arms in the air as you try to explain what it is you love about your favourite game, you're onto a winner. The industry is still populated by enthusiasts, and enthusiasts still like to talk to other enthusiasts, so if you jump up in the middle of your interview and start writing on a whiteboard what it was you were trying to explain, you're more likely to impress people.

But although enthusiasm is the first thing you should try to get across, it isn't in itself enough. Further evidence of your commitment to games is also usually needed. The clearest indication of this is that you've pursued your particular craft on your own initiative. 'We're looking for people who have been keen enough to attempt programming or art in their own time,' reveals **Dave Jones**, creator of *Lemmings* and managing director of DMA Design. 'Take a small project onboard. Programmers should be dabbling on their own machine, producing little graphical demos

and utilities. Artists should have a demo tape containing some bitmap work or 3D animations.'

Indeed, if you intend to become a graphics artist, an impressive portfolio will do more to win you a job than any qualification or interview technique. Likewise, if you come in

If you have no qualifications, you have to be prepared to put in the extra effort required. Most important is enthusiasm – the industry is still populated by enthusiasts

with a demo disk you've written (a conversion of some old favourite such as *Boulder Dash* is always a good start, but it doesn't need to be so complex), the evidence that you're willing to put in all sorts of hours writing games just because you love to do so will be obvious. For music, a demo tape and a knowledge of recording practices are often enough.

What games companies are looking for in candidates isn't necessarily highly qualified people. When applying for a games job, you might think it obvious to include some reference to games in your CV, but it is amazing how few people actually do so. Having a good knowledge of the industry is also rare enough to make a potential employer pay attention. When a company is hiring from outside the industry – which usually happens if it is expanding rapidly and can't spend time looking only for experienced people – the calibre of candidates is usually high. But a lot of these people are just looking for any suitable job in their field, saw the ad for games design, and thought it might be worth a try. If these candidates included an enthusiastic, knowledgeable but unqualified person who loved games and the industry as a whole, it's not too hard to see whom the interviewers would rather work with. Remember that in all but the largest companies, it is usually a senior member of the creative staff who takes the interview, and

CASE STUDY 4

Christian Robert

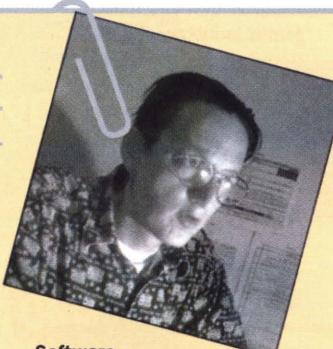
Job: Graphic artist

Company: Amazing Studio

After graduating from school, I spent two years at an art school in Paris (Academie Charpentier), where I learned the basic principles of drawing, composition and colour. Because I didn't know what to do when I finished that, I lazed around for a while.

I spent a few years doing nothing special, and then I started work in the advertising industry as a graphic artist. It lasted a few years, but it was not really my cup of tea. One day I bought a computer – an Amiga 500, incidentally – and I discovered a completely new approach to graphics that made me very enthusiastic.

I decided to do some 2D animation – it was new to me – just for fun. One day I replied to a job ad and sent a floppy disk of my work to Delphine



Software,

just on the off-chance. And that's how I became a graphic artist in the videogames industry. My natural drawing abilities pushed me in the direction of designing characters and backgrounds. My designs are first implemented on paper, and can then be realised in either 2D or 3D. But my preference remains 2D.

I have been doing this job for five years now, and have spent three years of that time working on *Heart Of Darkness* with the Amazing Studio gang.



The job game

there's a good chance that you'll end up working alongside them. Getting a job in the industry isn't just a numbers and qualifications game – or not yet, anyway.

There are a few other things to consider in an interview situation. Many games companies have had little experience in selecting staff, and so a number of dubious practices have sprung up. These may include recognised IQ tests at best to remembering Bresenham's line-draw algorithm or the name of 'that green character in *Street Fighter II*' at

worst. Never get disheartened in an interview if you seem to fail these tests; they are often arbitrary hurdles put down by people whose job isn't to select new employees but to design games, and these same people are not usually hung up on one selection technique or another.

If anyone is willing to reject a good candidate on the basis that they failed a memory test, maybe it's time for them to review their procedures – and you can tell them so. Making your point clearly and reasonably are traits that are

required in any good design team, and either way it will certainly be better than just keeping quiet on the assumption that you've ruined the whole interview.

In short, if you want to be in the industry badly enough, and if you know you can do the job, then getting in is all just a matter of making the interviewers understand that too. It's not the case that, without the correct qualifications, you're not even in with a chance. You do have a chance, and you have to keep at it until it pays off.



The recruitment agencies' view

Stephen Lloyd-Davies is general manager of Aardvark Swift (01709 571441), a leading recruitment agency for interactive entertainment.

'The "closed shop" syndrome is primarily a consequence of an industry driven by deadlines. Candidates are pre-selected by their ability to be immediately productive – hence the overriding emphasis on the need for experience.

'To anyone contemplating entering the industry, our advice would be to do it sooner rather than later. In fact, do it now –

there's never been a better time! There is an unprecedented demand for staff, especially programmers. A combination of acute shortage and very high demand is driving salary levels on an upward spiral. While much of the demand in the system is artificially induced, the marketing activities of the large multinational games companies will ensure it becomes more consumer driven. The domestic skill shortage is exacerbated by additional external pressures. The UK's ongoing success in producing quality, innovative games has provided a focus

for attention, not only for the product itself but also for its creators. Both individuals and groups are increasingly being targeted and approached by organisations based outside the UK, especially the West Coast of the USA, which is proving an irresistible temptation for many.

'But while the rewards can be exceptionally high, it's important that potential entrants don't approach the games industry with rose-tinted spectacles or regard it as an easy option. The leisure software sector is infinitely more interesting and stimulating than working

within traditional business application areas of IT, but it requires hard work, dedication and an ability to work well under pressure.

'The competition for staff is now fierce. The market moves extremely quickly, and there is an undeniably strong correlation between successful recruitment and speed of response. Any manager who allows a good CV to sit in his in-tray for more than a week may as well use it as a paper aeroplane. An experienced programmer is usually off the market in around ten days, usually with multiple job offers.'



Paul Rose works for Prospect Management Services (0171 439 1919), which has focused on the multimedia industry for the last six years.

'With technology evolving so rapidly, finding development staff with a wealth of relevant experience is becoming more and more difficult. Ten years ago, superstars were writing games in their bedrooms on computers that they would have been given as birthday presents. These days, such

presents would prove expensive, with development kits running into hundreds of thousands of pounds.

'However, those people working in the industry on titles for next-generation machines truly have the world at their fingertips. Their experience is rare, and so companies want to tap into that resource before the competition does. Companies know that they need to be able to tempt this talent over to their camp, and that is why the salaries quoted in

advertisements often seem too good to be true.

'The problem is that there are too many companies chasing only the experienced people; too many unprepared to take a risk and invest in training talented newcomers. The situation may arise when only the traditional media companies will have the resources to suck up the available talent, at the expense of the smaller and arguably more creative ones. Furthermore, there will be no

incentive for smaller companies to develop talent. And without a healthy independent sector, UK Games Industry plc will suffer.

'Therefore, the industry needs some UK-wide initiative to prevent this happening. It is in everybody's interest to have a thriving UK games industry, developing young talent and bringing in talent from related sectors like television/commercials, and the recording industry, where the UK is already a world leader.'



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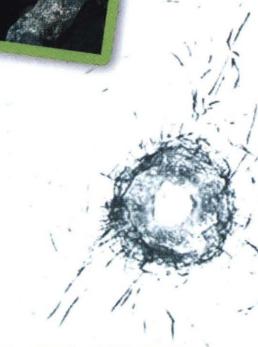


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Wipeout

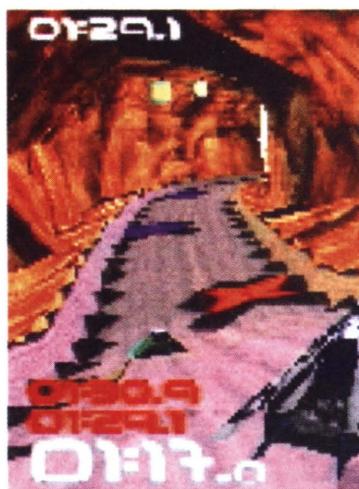
Format: PlayStation

Publisher: Psygnosis

Developer: In-house

Price: £TBA

Release: Late Sept



Tunnels, canyons and rollercoaster-like turns help to make *Wipeout* quite the most impressive graphics showcase yet for Sony's PlayStation

exhilarating, realistic sensation of speed but serves up the most impressive graphics yet seen on the PlayStation.

There are six basic tracks, which get progressively harder, introducing sharper corners and complexes of bends. When you've completed those, you can start on the six 'Rapier-class' tracks - night-time versions of the basic six which are around twice as fast and noticeably tougher. The course design is wonderfully imaginative, with features like huge drop-offs where the track disappears from under you and you glide through the air before bumping down again.

There's a standard selection of themed locations - forests, canyons, an industrial cityscape - but all are highly atmospheric

Most futuristic race games lack the feel and handling of real cars, usually because they simply spool tracks off CD and then plonk a few big sprites on top of them - witness *Crash 'n Burn* and *Mega Race*. Not so *Wipeout*, which not only creates an



The six basic 'Venom' courses in *Wipeout* (clockwise from top left): a tunnel in Altima VII; the canyons of Karbonis 5; Terramax; the industrial Horodera; the desert stage, Arridos IV; and snowbound Silverstream



Wipeout is playable from both the behind-ship view (top left) and the in-cockpit view (top right), which banks sharply and flips on impact with the sides of the track. The dramatic canyons of the **Arridos IV** track (above and right)

and well-detailed. The monumental scale of the trackside barriers and surrounding scenery not only serves to mask the limited horizon drawn by the PlayStation but also forces the player to be constantly alert, adjusting the ships' path and thinking one corner ahead.

A lot of care has been lavished on the handling and controls of the different ships. Flying on a cushion of air above the surface of the track, the craft bob up and down convincingly, feeling satisfactorily weighty yet responding well to the gentle nudging required on the first couple of tracks. Move on to the later, more difficult courses and the tight corners require deft use of the twin air brakes.

In a nod to the seminal *Super Mario Kart*, markings over the different tracks provide one-shot power-ups which can be used to gain

valuable ground on the seven other intelligent computer opponents in each race. In addition, arrows on the track surface act as speed-ups – and on all but the first tracks it's vital to hit them if you hope to finish in the top three and qualify for the next race.

A soundtrack featuring tunes by Leftfield, The Chemical Brothers and Orbital augments this thrilling arcade experience, as does the two-machine link-up game. The simplistic championship structure and reliance on track-based power-ups limits *Wipeout*'s lifespan, but it's hard to criticise such a beautifully realised and well-produced game which exploits the PlayStation's power so well.



Each of the many jumps in *Wipeout* is patrolled by a small ship (above) which grabs your craft with a tractor beam should it fall to get across or veer too far off-course

Edge rating: **Eight out of ten**



The range of blues and whites on the Silverstream level creates a convincing snowscape (above left). Gigantic trackside advertising hoardings help flesh out the science-fiction scenario (above right)

Command & Conquer

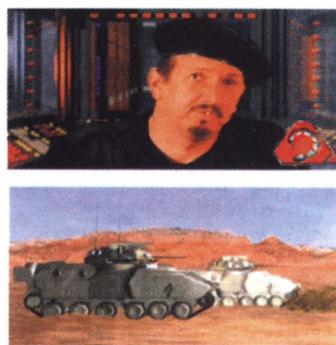
Format: PC

Publisher: Virgin

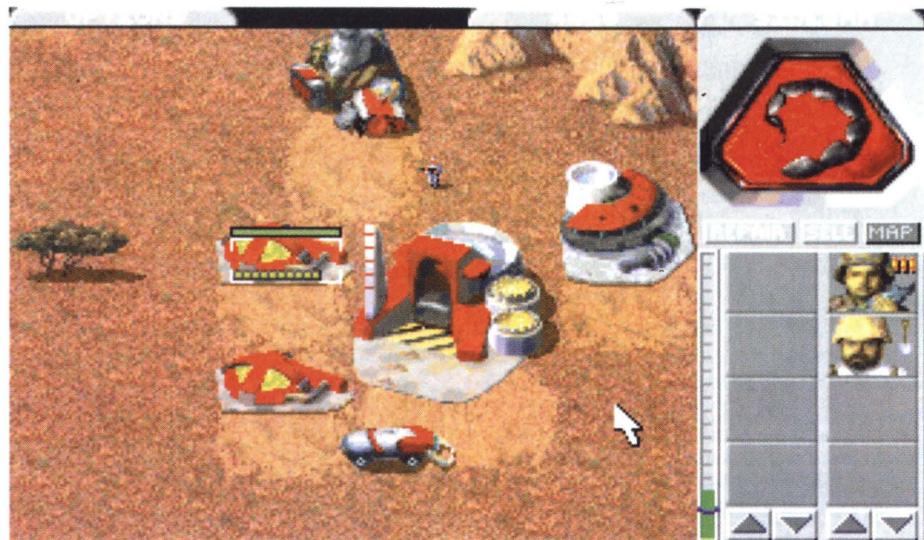
Developer: Westwood Studios

Price: £45

Release: Late Sept



Pre-rendered sequences are employed to update the story between each mission and provide a briefing for the next (top). Tanks rumble across the desert (bottom), and it's your task to stop them



Constructing buildings quickly and defending your Tiberium harvester is vital to your success

Some games have everything in their favour yet ultimately fail to live up to expectations. *Command & Conquer* has been lavished with pre-launch publicity, marketing hype and 90 per cent-plus review scores from various games magazines. So it's regrettable that it's an only slightly improved version of a previous Westwood Studio game, the excellent *Dune 2*, which appeared over three years ago.

C&C's principal problem is the all too familiar curse of CD-ROM. The CD's huge storage capacity has lured Westwood into adding megabytes of extraneous story-development video footage, cut-scenes and tactical development information. Although they're among the best examples of their kind (they're even a match for those in *Wing*



Capturing enemy fortifications with engineers is an ideal way to gain ground quickly. The red Tiberium factory (above) has been captured, leaving you vulnerable to counter-attacks

Commander 3), the fact is you never actually play them. So, after a brief 'isn't that nice', it's back to the game, where the paucity of innovation soon becomes evident.

Basically, it's all been seen before. Those familiar with *Dune 2* will remember constructing factories and sending troops off into uncharted enemy terrain to fight and capture buildings, while harvester units mined spice for money and returned it to base in order to finance further expansion. Substitute spice for Tiberium and you have *Command & Conquer*. Taking command of one of two rival organisations struggling for mastery of the world, you battle for control of countries, advancing or retreating according to the effectiveness of your strategy.



After each mission (most of which are essentially similar), the computer zooms in on your combat arena (in this case, the Sudan) and analyses the progress of the two combatants



Attacking en masse is effective but can be expensive (top). The panel on the right lists your current buildings and allows you to control your resources. Buildings appear in the left-hand column and available troops in the right-hand one



Razing a village to the ground before shooting its innocent inhabitants – a great American tradition

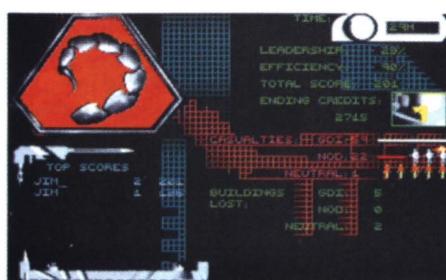
The actual game, although derivative, is great fun to play, offering a compelling combination of speed, strategy and surprise. The number of different enemies and buildings makes it possible to pick one of many courses to success (or failure). However, it's a shame that all the battles are shown in blocky VGA – with other strategy games like *Syndicate*, *Sim City* and *Transport Tycoon* displayed in glorious SVGA, *Command & Conquer*'s chunky, predominantly brown pixels look very dated.

But arguably the most important aspect of a game like *Command & Conquer* is the artificial intelligence – of your own forces as well as the enemy's. Your foe is controlled skilfully by the computer and offers a real challenge – it's hard to win any major skirmish without amassing considerable reinforcements. But your own troops aren't always quite so intelligent in their movements. Obviously, you, the player, are the ultimate intelligence, but it's annoying when you click

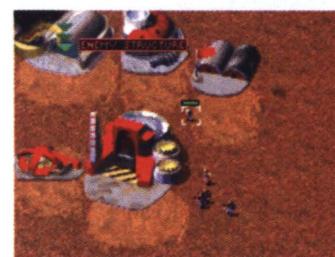
on a destination and move off to plan a co-ordinated offensive, returning only to find that your troops have unilaterally decided to wander off down a different valley and got themselves slaughtered. Cock-ups like these aren't particularly frequent, but they're extremely infuriating when they happen.

Command & Conquer's sound is excellent, with a thumping background rock track supplemented by realtime narration. The commentary not only enhances the atmosphere but contributes greatly to mission planning. And given that you can rarely see all your units onscreen at once, it also serves to provide warnings if, for example, your prize engineers are about to be butchered.

Playing *Command & Conquer* is a highly enjoyable experience. The game has enough depth to keep you going for hours, and the multiplayer option extends its life still further. It's just unfortunate that there's nothing really new on offer here apart from a few superficial additions. A company with the kind of talent that Westwood has at its disposal should have been capable of creating an excellent new game rather than rehashing an (admittedly superb) old one.



At the end of each mission your performance is rated. This has an effect on the whole campaign



An engineer heads for an enemy structure. Even the early levels of *Command & Conquer* are extremely challenging – expect to get your money's worth from this one

Edge rating: **Eight out of ten**

An audience with...



The man charged with making the world's biggest videogame iterations of the world's biggest sport is trying hard to evolve the *FIFA* series, although his references to "close calls at the net" and "pass-backs" suggest a need to view more MOTD tapes. At least gameplay is top of the list of priorities for the 1996 edition.

Few people know videogames as well as Bruce McMillan, an industry veteran who has worked with some of the biggest names in the business. **Edge** goes west to meet the man in charge of development at EA Canada (formerly Distinctive Software)



lectronic Arts Canada is a hive of activity at the moment. Bruce McMillan, senior vice president of development, is racing around, playtesting *FIFA Soccer '96*, sorting out network support, approving music, rubber-stamping artwork and spurring along the teams at Extended Play for a five-format simultaneous release of the game.

An industry old-timer, McMillan has worked with Konami, Accolade, Brøderbund, Epic, Mindscape and Sega. He's the man who conceived *Hardball 2*, designed the acclaimed (and prophetic) *4D Sports Boxing*, and brought the *FIFA* series to life. Along with Don Mattrick, he was the leading light in Distinctive Software (DSI), a Vancouver-based outfit which joined the EA fold in July 1991. A lot has changed since then. The EA organisation has swelled from 300 staff with an annual turnover of \$100m to around 1500 employees and a \$500m turnover. In the interim, McMillan has been responsible for some of the biggest PC releases ever.

With such impressive credentials, McMillan is a good person to talk to about the state of the games industry today. **Edge** visited EA Canada to speak to him, and although he was initially reluctant to even give an interview ('Can't you interview the team instead - I don't want to take all the credit'), he eventually conceded. A keen football player and Manchester United fan, he exudes enthusiasm for the sport he is struggling to simulate and discourses on the topic with a rare zest, always eager to get on his feet and show off a special kick. And, strangely for a North American, he always calls football football, and apologises when he slips up and calls it soccer.

Edge Did you notice any immediate changes when Electronic Arts bought out Distinctive?

Bruce McMillan No. Distinctive had a reputation as a strong design and creative house that was capable of making hit products. EA bought us with the intention of leaving us alone and allowing us to grow. DSI as a developer was always denied two things. The first was distribution access - ensuring the right and best distribution for your product. Secondly, access to capital to build your products. What we found was that many of us were spending

a lot of our time trying to get money to make things happen and not as much time as we'd like on product. What EA gave us was the ability to build our massive studio. In the short term that wouldn't have been possible with DSI. Also, the distribution power EA had was quite impressive. So we felt that complementing our skills with that business engine would create a winning team. The studio has flourished under EA's management. We've added a lot of great people and been able to take the studio onwards. Our specific studio is larger than some of the publishers out there, which is interesting. Bullfrog's the same and so's Origin. EA take a hands-off approach – they want the company to run successfully. The reason they bought the companies in the first place was that they were successful, and they didn't want to go in, turn it all around and change it.

Edge So what advice would you offer Peter Molyneux of Bullfrog, EA's most recent acquisition?

BM My advice to Peter has been to continue to focus on what he's been doing in the past, which has been very successful. He's a brilliant designer and a great visionary. It's easy to get lured into the EA engine – it's a very big company with lots of exciting things going on. What we're trying to do is focus on what we do best, let the rest of the company run on its own, and contribute as a family member rather than try and be involved with all aspects. Peter's work in the last few months is testament to the fact that that's what he's already doing. He's benefiting in the same ways we did: access to funds to build his studio up, money to recruit even better people than he has already, and access to that distribution channel. One of their objectives is to get Bullfrog more access to the North American market. They're really unknown in North America, which I think is a shame.

Edge You've really specialised in sports titles. What do you think makes a good sports game?

BM Sports games are relatively straightforward to build. It's a big X on the wall. As we're keen on saying here, 'It doesn't take a rocket scientist to get the X.' The difficult thing is making that X a bigger, better X. Take *FIFA* as an example. Before I designed that product I really

thought about what the essence of football was. What excites a football crowd? It's the chants. The calibre of the match. The whole atmosphere. Those have to be reproduced somehow in a videogame. The speed of the game, too. If you go to a football match and watch a defensive struggle, it can be very boring sometimes.

'What I've tried to do with the sports games is not take them so seriously. Not have the level of detail where it's a pure simulator and gets boring'



What's really exciting is when things turn around, go back and forth. What I've tried to do with the sports products is not take them so seriously – not go down to the level of detail where it's a pure simulator and gets boring. I wanted to have strong simulation elements for authenticity, but I also wanted to have the excitement. You will see 10-0 results sometimes, if you're playing against Brazil. That's okay. It's a videogame, so you can't take it too seriously. But at the same time you have to have the authenticity. If the game is breaking a football rule, that's a problem. That is where the big X is: making the consumer feel that they're there and not playing a videogame.

Edge It's well known that you're a big *Sensible Soccer* fan...

BM Yes. *Sensi* excited me because of the speed of the gameplay. I was passing the ball around very quickly. It was the speed of the game that suspended my belief, working out how to try to get the ball up the field. I found the gameplay incredible. What I missed a lot in *Sensi* was the audio feedback on the close calls at the net. And I felt the



characters themselves could be better. I felt there was a better presentation field for that product. I still play *Sensi* and think it's a great game. It's one of the games I'm always going to keep around and ensure that whichever platform I have available I will be able to play it. Generally, I keep old platforms around for great old games. **Edge** Would you say that in the first incarnation of *FIFA* you missed out on the twitch gameplay that *Sensi* offers?

BM I think that's what we've learned a little bit. That twitch gameplay is essential. A lot of the 32bit games coming out right now are losing that because they're trying to get 30 and 40 frames of animation. They look really cool but lose complete control. *Sensi* taught me that visual elements aren't enough. I think I'd agree that we could have

improved our gameplay, just as *Sensible* probably think their audiovisual elements have room for improvement. In *FIFA '95* I tried to give the product better gameplay. And in *FIFA '96* it's my number-one priority. I think we were hitting some barriers on the sound on the carts, particularly with 16bit. Where you can innovate is on the gameplay. If you're talented enough, you can make your gameplay experience fresher and newer every year. Since the last incarnation of *FIFA* we've had people spending all their waking hours working on the gameplay.

Edge So will you be incorporating fewer frames of animation in *FIFA '96*?

BM No. We profile the game and look at what's important. Run it for a while and see which animations are called most. It's a very simple technique. Those animations need to be optimised, they need to look their best. You also have to make sure they're not slowing down the gameplay. What we found was that – even if it seems pretty obvious – the dribbling, tackling, shooting and passing elements were called 80 per cent of the time, and we had to make sure those things were optimised. As for the non-interactive side of the game, like goal kicks or throw-ins, those elements are called less frequently. They still need as much detail but maybe should take less time for our animators. In the early days of *FIFA* we looked at everything. Now we're trying to focus more on the main bits. We're also getting into things like more complicated pass-backs and special moves.

Edge Special moves in a football game?

BM There's a lot of what I'd call special moves in soccer. You see a guy, break with the ball and are then able to get around a defender using a special move. A lot of the crowd will have no idea what's happened. All they'll know is that the guy got around the defender. We've tried to not get so detailed that we put in a move that nobody

interview

knows about. We want you to know what you're doing and be given a lot of control back. But essentially, we're trying to make the game so you can develop a strategy. If you play against me you'll maybe develop a different set of strategies than I will. I might play a long-ball game, you might play a defensive strategy and kind of work your way up the field. That's what we're trying to do with the gameplay element. Much beyond just changing the art. Our code element this year has changed more than the art elements. The art itself has got more detailed with our SGI anims. Those have got a little larger but more optimised. What we've found when we have the kind of precision an SGI machine offers is that we can reuse a lot more things.

Edge It's been said that Silicon Graphics was the worst thing that ever happened to game design. What do you feel about that?

BM SGI is a tool. It allows you to do a lot. Especially when you're programming for a cart-based system, where you're supporting, say, eight or 16 different directions of a sprite. You're doing a lot of redundant work. Once you've drawn the sprite in one direction and it looks really good, you're either going to employ an artist to draw the other directions or use a tool to do that. The SGI allows you to do that very quickly, very simply and save a lot of time. I'd rather our animators worked on the creative bits than the redundant work. The SGI also gives us the chance to prototype things. It's very simple to throw something up on an SGI, see what it looks like, play with it, see how it feels. But an SGI can't replace good game design.

My biggest concern about the industry is that we're surrounding gameplay elements with a lot of fluff. And that scares me. In the early days of this business we were forced to design games in small memory elements, so the gameplay had to be there right away. The game mechanics had to be really self-evident, because that's what people really evaluated it on. Today there's a lot of these front ends that go on and on, and so-called interactive movies at the beginning of games. These things stop you from getting to the gameplay. Five or ten minutes in, you get to the game and go, 'So this is the game. I'm not all that happy.' That's what annoys me about these tools like SGI or larger storage systems.

'My biggest concern is that we're surrounding the gameplay with a lot of fluff. That's what annoys me'

Edge You've remarked previously that all manifestations of *FIFA* are simply subsets of your ultimate game. What is this superlative football experience?

BM My ultimate game is in my mind. I haven't been able to find a platform yet that can deliver what I want. There's a lot of elements in terms of the player rendering. It's really hard work. I'm impressed with the SGI stuff, but I think we can go beyond that. Emotion, for example, is something that has yet to be captured in videogames, and yet it appears all the time in real sports. And it goes beyond sports. You go and see a great movie and you get into

the characters and the story – it touches you. If you're watching a football match and you're sitting on the edge of the seat, waving your fist in the air, it's touched you emotionally somehow. Photorealistic rendering, of the stadiums, the crowd, is going to be possible very soon as resolutions go up. There's a lot of things that go on in the game that you can't really touch right now, because of memory considerations and the hardware. I'd like to look into different ways of presenting the product, with different views. With football there's the management element, the strategy element. Understanding how your coach feels about how you're playing. Being

in the locker room at half-time and hearing that talk from your coach on how you can improve your play. Being coached by the computer, you coaching the computer, back and forth. Those kind of roleplaying elements haven't been touched.

Edge Does that mean we can expect a locker-room sequence in *FIFA '97*?

BM If the hardware can support it. The last thing we want to do is be running redundant videos. It really annoys me when you play a game for ten hours and then you've seen all the video elements, all the different permutations. I don't want to bring out something like that unless it can really add to the gameplay.

Edge Which format do you think will dominate in the next few months? Are you going to toe the EA line and back 3DO?

BM Formats are a really interesting situation right now. I think there are too many of them. People keep forgetting that PC CD is probably the most versatile, exciting and fastest-growing format. The technological innovation that's been going on with the PC during the last year or so has been pretty important. Active gamers are now buying the very fastest machines

and turning them over very quickly. As a game producer, developer and designer, I try to focus on those high-end machines, because that's where the technological innovation is.

Edge And the consoles?

BM The winning format will be the one that delivers the most affordable hardware with the best speed, the best interactive experience and the right software. They can all win the game if they do that properly, but Sony is the only company demonstrating that they can do it. They're delivering at a competitive price point which people can afford. If they continue to deliver the same standard of software, they will win this fall. I'm a big fan of *Ridge Racer*. It's an excellent product. It's a demonstration of what the PlayStation can do. For Saturn to be successful, Sega have got to be very price point sensitive, focus a lot of attention on the development community and make sure there's good software coming out of the door. As for M2, if 3DO deliver the hardware spec they've promised, with an upgrade path from the original machine, then they can have a go. But it's really driven off the price point, and who's going to support them? I'm betting on Sony. I think Sony's going to deliver. They want to be in this business and their start in Japan has shown that they have serious intentions to be here.

Edge So does 3DO dead in America?

BM I wouldn't say it was dead. It's still being widely distributed in our conventional distribution area. I would say that now people are confused, because they've heard about this M2 technology and are saying, 'Should I buy an older version now when a new version is coming?' That sent a confusing message to the marketplace. Last year there was the message that this was the most state-of-the-art technology and suddenly there's new technology. I don't think that 3DO in general is dead. They still have an



opportunity if they learn from what they've done in the past and build on it. But the biggest thing for 3DO is software support. **Edge** What about Nintendo's chances?

BM I think the Ultra 64 is going to be very strong in Japan, because the Japanese have had such success with the Super NES and NES. Nintendo is uniquely positioned, because it is the sole videogames-only hardware outfit. Other firms have it as a proportion of their business – even Sega has the coin-ops. Nintendo is trying to focus all its attention on the consumer business and they'll be well positioned in Japan. My biggest concern is the price of a 64bit cartridge. If you're buying a platform for \$250 and then have to pay \$100 for a cart, that doesn't feel right. The Neo-Geo had 100 megabit carts available for it, and they were very expensive. I

know Nintendo is talking about new technology and I hope that happens. I hope the software support is also there and that Nintendo doesn't limit the amount of software by being very selective. I have no problems with the quality levels, but if they get into these exclusivity issues – 'develop for our platform and you can't release for any other things' – you're going to see a lot of key products not make it onto the Ultra 64.

Edge Have you been invited to join the Nintendo 'Dream Team'?

BM I can't comment on that. But Electronic Arts has a strong relationship with Nintendo, and they've spent a lot of time with the major hardware manufacturers to make sure that we can focus on their new platforms and have an opportunity to get the products over there. So Nintendo would be foolish not to work with the bigger companies like EA, and I think they realise it themselves. Nintendo wouldn't want to release a no-name soccer game, would they?

Edge Will they bend the rules for you?

BM Several years ago 'FIFA' was just the name of the worldwide governing body of soccer. Now it's a label which represents quality and presentation. We've had very good sales on our SNES version of *FIFA* across the world, and I think Nintendo understands that *FIFA* is a very strong element that could add lots of credibility to their platform. I don't think they need to bend rules. I just think they need to get realistic on them.

EDGE



The Ultra 64 is going to be very strong in Japan, because of the SNES and NES. I hope the software support is there and that Nintendo won't be too selective'

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Reports of 3DO's demise have been greatly exaggerated: the company has now sold approximately 700,000 consoles on which it's possible to choose from over 220 games (a ratio of just under 3,200 users per title released, which could be a record). But where now? And, more importantly, how does M2 fit into the picture?



3DO

All this and M2

First step or last chance for 3DO?

our years after The 3DO Company came into existence, CEO Trip Hawkins invited Edge to its Redwood City HQ to check out its progress.

The day was dual-purpose: to show off the current generation of Studio 3DO software and to provide an exclusive peek at the now complete M2 hardware. And it's indicative of 3DO's current situation that the impressions of each contrasted sharply.

Although the current generation 3DO has sold over 700,000 units and the company's finances are on the up, the vociferous support by Electronic Arts and other big names is waning. Hawkins needs to convince third party developers now that his platform has what it takes to be the best. 'We really want to target new customers with a standalone unit in 1996/7,' says Hawkins. It will only be in this way that quality titles will appear for M2 for next Christmas and beyond.

So it was down to M2 hardware guru Toby Ferrand to detail the company's future. 'We've learnt a lot of lessons from our current hardware,' he says. 'We're very confident that M2 blows away the competition from a performance perspective.' Then he went on to give a frank and valuable tour of the M2 development labs.

'A multimedia system is all about managing a lot of data. Audio data, video data and 3D data. A system's power results from its ability to manage and handle that as quickly as possible,' starts Ferrand. And M2 is designed with these aims in mind. The currently available specs from 3DO include 1 million polygons per second, hardware z-buffering, MIP mapping, and MPEG decoding.

To make this possible The 3DO Company enlisted the help of some of the PowerPC consortium's (Apple, Motorola and IBM) top hardware designers. The custom PowerPC 602 chip was one of the

3DO's M2 hardware is now complete. But can it fight off Sony, Nintendo and Sega in the months (even years) to come? The 3DO company seems to have few doubts about its new baby...

fruits of this labour, the other was a highly integrated board with all the major components crammed onto one chip. To demonstrate the technology, Ferrand compares the latest generation of the M2 hardware to the competition.

Lying in front of Ferrand are a disemboweled Saturn and PlayStation. He points to the Saturn: 'The first thing you notice about the inside of the Saturn is that it's a very chaotic design, frankly. There are a huge number of chips for a mass market board like this. It's really thrown together. I can imagine an arcade system being as complicated as this where you've got less material bills pressure but this is a really difficult system to assemble.'

'And this is a PlayStation. It's more what I expected for a product of this nature. Fairly dense board, fairly compact and certainly simpler than the Saturn. This is really targeted at a high volume market but they're certainly losing money at \$299.'

Next out is the latest Goldstar M2 logic board. 3DO refused pictures of the labs and board, saying that it's too early to let the competitors really get to grips with what it's up to. But Ferrand is not keeping his target a secret: 'We want a single logic board with no back-mounted components, as small as the PlayStation's but with seven times the power.' And at the moment things are looking good.

The board is slightly bigger than the PlayStation's but there are some large spaces that Ferrand says will not be there at the end. All the components are on a single board, unlike the the Sony machine, which has some components (CD-ROM controller chips) on the back. Also, the

power supply is being placed on the same board. The reason for this compact design is quite simple – price – but there are two main ways this saving can be achieved. By mounting all the components on one side of the board manufacturing costs are greatly reduced, and likewise, the fewer components are used the lower the overall bill.

3DO has essentially condensed the power of M2 into two chips. The PowerPC 602 processor works in tandem with the Calvin chip that performs most of the hardware trickery. Supporting these are the usual array of CD controllers, RAM and ROM banks and connectors. The Calvin chip is benefitting from IBM's extremely high-tech manufacturing capabilities. The first wave of development systems (which are already with programmers) are unoptimised and would be extremely expensive to produce for the mass market. From here on the team is concentrating on integrating the final silicon as much as possible.

An example of this is the Calvin chip. The denser the silicon in a chip the smaller its die size (the chip's physical area). And because the die size is ultimately directly proportional to the cost of manufacturing the chip, high technology allows the product to be manufactured for less. M2 is based around a five layer chip manufactured using 0.35 micron technology (ie it's small and extremely dense).

The power packed into this silicon enables M2 to perform all the graphical effects in hardware, as opposed to expecting programmers to develop their own 3D clipping and interpolation routines

(which takes time and is hard to do well). This hardware assistance will undoubtedly prove very attractive to new developers and will encourage doubting software houses to sign up.

Although Hawkins' aim of creating a standard multimedia platform for all the family has not exactly succeeded with M1, the emphasis is still on this goal. For M2, however, 3DO has added the huge mathematical capability of M2's polygon engine. This enables 3DO to keep focused on its goal but also allows pure game developers to exploit the machine's power. And a major part of M2's future involves MPEG video.

Video playback

is becoming increasingly important in games today as publishers assume that the more mature first-time gamer requires high-quality visuals to depict a storyline. In this way they can associate their product with films rather than consoles. The current 3DO uses an adequate video playback technology called Cinepak but the quality never approaches that of VHS.

M2 has a full hardware implementation of MPEG on its Calvin chip. In 3DO's testing lab streams of data are pulled off CD, decoded instantly and mapped on to a variety of spinning and moving shapes at 30 frames a second. 'To us, the MPEG data is just like any other texture. Each of these spheres,' gestures Ferrand, 'is 2000 triangles. You just tell the graphics API to take this texture and wrap it onto this object and it does it. As you can see you can do anything with the system.' He proceeds to add a video background and a spotlight to demonstrate.

One of the most interesting possibilities of this power is that it will soon be possible to have constantly moving textures. Rather than simply substitute one bitmap with another, it will be possible to have video walls within games showing footage as if it were building texture maps. In fact, it seems as if the MPEG hardware (it has won industry awards in its OEM format) could be almost too good until CDs can hold more data.

'If we're decoding at 640 x 480 resolution we've got about 50% of the bandwidth left,' says Ferrand. The Video CD standard is 320 x 240 resolution so 640 x 480 is four times that. If you have a quad speed CD drive or were playing over a fast set-top network our CD is already very close to what you'd expect to see on a DVD or LaserDisc. And don't forget that you can have multiple streams simultaneously. Now all we need is a dense

enough CD to store a whole movie on it.' And it's likely that 3DO, having realised this power, will have decided to support one of the DVD standards.

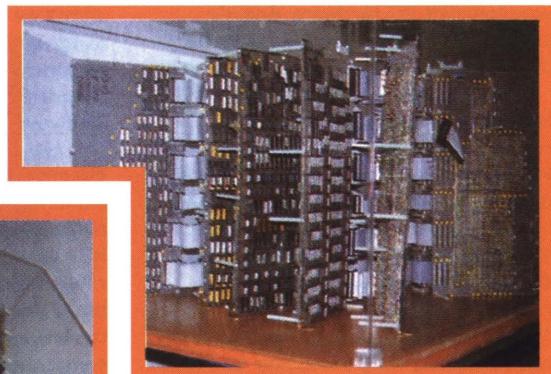
The problem of what to do with the original 3DO's components when upgrading to M2 has obviously been one that has weighed heavily in plans for M2. Trip addresses the question from a marketing point of view (see the following interview), but from a technical side RJ Mical raises different points. The two key elements within the 32bit console are the RAM and the CD-ROM drive. RAM is expensive but another couple of megabytes opens up many programming possibilities. 'It's a question of performance. Do you want to save the money but have a potentially much lower performance because you have to go through a much longer pipeline to get to that RAM? I don't think it [the 3DO's DRAM] could be used as regular, normal high-speed interface RAM,' RJ says.

The CD-ROM is important because it illustrates upgradability. It is now just as cheap to produce quad speed drives as it is

Just as M2's impressions were almost totally positive, the current batch of 3DO games weren't.

The Studio 3DO titles were a mixture of the promising and the totally lacklustre. *BattleSports*, a title that would barely be considered passable on the Mega Drive, sat uncomfortably next to the smooth 60fps demos being shown on M2. *Bladeforce*, *PO'ed* and *Starfighter 3000* confirmed that good things are possible with the existing 3DO hardware, but at point of sale they still cannot compete with the other machines out there – both in terms of graphics and gameplay. And although *Deathkeep* is the fastest game on the machine ever, the level design is disappointing to say the least.

But it is fast-paced action games that will sell M2, not embarrassing pseudo board games like *Zhadost*. Although 3DO software is now abundant, the initial roll-

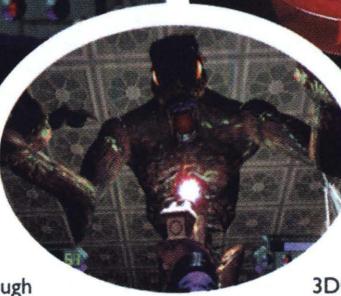
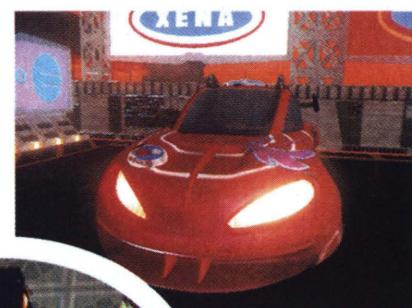


The very first 3DO prototype sits proudly in the company's cafeteria. Big, isn't it?



out of 3DO games was less than spectacular, both in terms of quality and quantity. Hawkins admits this and says that the company will be taking a different approach to M2's software situation. 'We wanted to take matters a little more into our own hands so we're not totally going to depend on third parties,' predicts Hawkins. 'We're developing more internal Studio 3DO products and working specifically with really good third parties who have the ability and the interest in being on the 64bit leading edge. We think that way, that we'll have a much less risky introduction and at the introduction we'll have the really great killer applications that we need to drive interest in the hardware.'

M2 has crossed the line from being a collection of fanciful tech specs to hard silicon that people can work on and believe in. And that can only be good news for the company.



The 3DO Company is expecting great things from M2, and is showing off games like *Dungeon Keeper* (above and below right) and its embryonic racing game (right top and bottom) as examples of its graphics power

RJ Mical and Dave Needle are not what you'd expect hardware designers to be like. RJ looms over his partner, joking and joshing while Needle laughs and gives as good as he gets. There is nothing about either man that makes you suspect that they've designed some of the most acclaimed machines of the computing age. RJ is a shining light in an age of corporate grey.

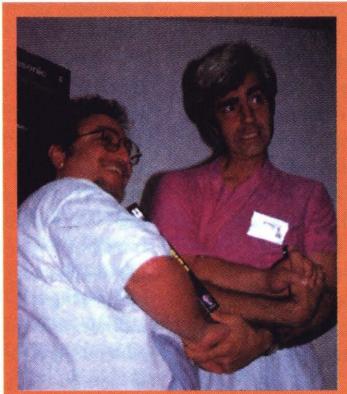
His first professional hardware tinkering was years ago in Chicago for a company called Williams Electronics. But the development pace accelerated when he teamed up with Needle in the early 80s and set about designing a new hardware platform. Years later the Amiga 1000 was born, and with it the first powerful, practical and upgradable hardware platform since the PC.

The Amiga was immediately recognised as something special in the technology department, but the A1000 model never made the impact that Commodore hoped. 'It was recognised as a

real nice piece of technology that just wasn't sold well,' says RJ, and although the machine went on to be hugely successful in Europe it never truly caught on in the US market. But it was RJ's and Needle's initial specs that allowed the platform to flourish. Speaking about the Amiga's UK and German tecchie democoders he enthuses, 'These mad-dog programmers who live, breathe, eat and drink this stuff. I would hire each one of them to join my company if I could because I want those kind of passionate, crazy, wild-haired, wild-eyed fanatics who care about doing superb things.'

Following the Amiga was the Lynx, born out of Epyx's company labs. 'We didn't believe it

had a chance of surviving when it was sold to Atari. We resisted as much as we could having the thing go to Atari and when we were unsuccessful we resigned from the company.' The Lynx is yet another of Atari's great missed opportunities.



Dave Needle (left) and RJ Mical (right) are the development duo behind the 3DO hardware and M2 upgrade

So RJ, with Dave Needle and Dave Morse, set about a new task, designing prototypes of what eventually became the

3DO. 'People were willing and enthusiastic to front us the money to bring it to fruition,' he recalls. RJ took charge of the operating system and Cinematic Software Tools and is currently vice-president of The 3DO Company. He's bullish about the prospects but in a much less corporate way than Trip.

'With the 3DO, we wanted to make you sit back and say, "Woah, this is television." He's particularly delighted with the 3DO's overall graphics capability but thinks that polygons on their own are overrated. But with M2 being so polygon-focussed times are moving on. Speaking to RJ it's easy to forget what influence he has had on the industry. As VP he's closely involved in 3DO's strategic planning and makes no secret that he'd like to see Philips jump on board and ditch the CD-i - "It's time for the next steps to be taken."

RJ's lounging around on the floor staring up at a big TV showing off the latest 3DO games going. 'That's so cool. Hey, just look at it move'. He's got a 60" projection TV, a 3DO (or a few) and the six pads required to get the most out of *FIFA International Soccer*. And of course the largest 'tache in the industry (only he's shaved it off recently). The wild-eyed enthusiasm makes you believe because he so obviously does.



Trip Hawkins was present to detail The 3DO Company's performance and answer questions about its future. He was in a bullish mood. First there was a rundown of the company's finances, but it was his plans for the next year that were listened to most carefully.

Edge: How are you doing? Made any money yet?

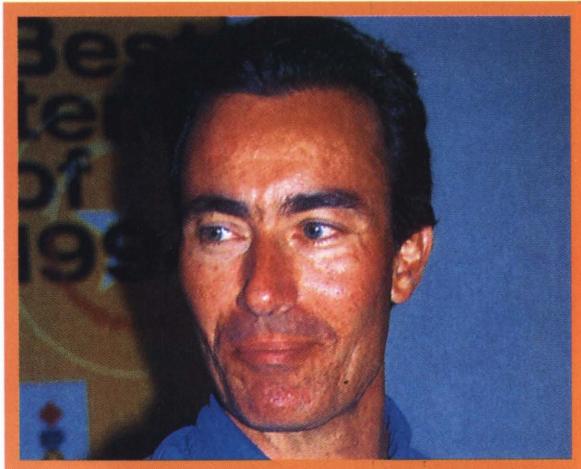
TH: Let me update you now on the progression we've made as a company over the last year. We just released our June results. Our revenues were up 45% from a year ago so that's one occasion of progress. Our expenses were down by 30% from a year ago so we just worry about how we spend money as all our losses were cut by 50% from last year. Also our cash reserves have increased significantly. We actually have more cash rate now than we've had in any time in the last year. Our installed base is now around 70,000 which is 5 times more than it was a year ago – a year ago it was only about 150,000 – that's a lot of progress in a year. We now have over 220 software titles available compared to around 50 a year ago when Road Rash had just been released. That means a year ago we had *Total Eclipse*, *John Madden Football*, *Shock Wave* and *Road Rash*, that was about it. So it's really improved quite a bit.

Edge: What about your distribution network?

TH: We're now in over 10,000 retail outlets in America, which is up from only about 4,000 a year ago. A year ago, we did not have GoldStar even shipping in any 3DO hardware. So that's another big change in the last year. They're now shipping both NTSC hardware for markets like North America as well as Power hardware for markets like Europe. We are

Bladeforce

Bladeforce promises to be 3DO's biggest Christmas hit. It's certainly the fastest title on the machine and the huge variety of *Bladerunner*-esque scenery slides by to impressive effect. Over the past couple of month's the gameplay has been finalised. You are a copter-headed mercenary hunting down criminals in an strategy action environment. Expect a full review next month.



Trip Hawkins

now selling in Europe – we were not selling in Europe a year ago. We are also selling in a lot more countries in Asia than we were not a year ago. So that's a big change.

Edge: You've had to rely heavily on third party software support from companies like EA and Crystal Dynamics to date. How are your efforts to establish Studio 3DO as a first-rate publishing house developing?

TH: We're really excited to be building up our publishing business. It's really grown a lot in the last year, and it's really finally ready to take off. We're in a great location to be building up the studio and we've put together a group of talented people. So we've enabled the company to bring together the four different industries: the semi-conductor business, the PC business, graphic war station business, and the video game business. And of course, with the

studio we're able to leverage off all of those talents. We're bringing together now the real merger between Silicon Valley and Hollywood talent. In fact, when I founded Electronic Arts in 1982, there were about 10 other people who I considered to be my co-founders who were all hired as employees before we actually had our first real office.

You may find it interesting that five of those people are Artist Studio 3DO – including myself, of course – but also Joey Barer, who was the first producer at Electronic Arts, the first producer of products like *Doctor J* and *Lurg Luan Luan*, stuff like *Bartscale*, the *Seven Cities of Gold*, *Newall* and quite a few other projects. Steve Hayes was one of the first two technical guys at EA. Among his other exploits over the years he was the guy who reverse-engineered the *Sega Genesis* for EA, so he worked on a lot of great games there. Another guy, Bill Budge, was the artist behind *Pinball Construction Set* which is still considered one of the all time famous games. Of course, you know he's done the engine for *Bladeforce*. He's applying the energy now to some other new games we're evolving. David Mayord, who was with Steve Hayes, is one of the original technical guys and he was the guy that designed the first artist workstation at Electronic Arts.



There are videogames

magazines...

Killing Time

Studio 3DO's first attempt at a *Doom* game with a plot. Explore a large estate complete with a variety of puzzles and foes to thwart your progress. The idea's sound but the slow and jerky 3D action and limited number of bitmaps makes the total experience less than gripping.



So that's just a few of the people that I brought over from my experience at EA. And then, of course, you have people like Eaves Oyion, Greg Resiski, guys who have come over from Industrial Light And Magic. They've worked on *Jurassic Park* and *Star Wars*, and have brought a lot of their ability as creative people and artists to create the characters and storyline of products like *Bladeforce*. And there's Ed Lopper, who was with Atari games for more than 10 years.

So we feel like we've got a really

terrific core of really experienced, really talented technical and creative people from the games industry and we've got a good nucleus now to build around and we're going to build that business as fast as we can. Our focus is going to be on creating state of the art titles that are really on the leading edge, and the fact that we've got the first real 64bit architecture gives us a great opportunity. We're going to have ten projects in development for M2 by the end of next month, just based on what we're doing with Studio 3DO. That gives us the early lead as a 64bit developer.

Over the course of the next year we're probably going to publish 10 to 15 titles for Studio 3DO, and as you know, *Killing Time*, *Bladeforce*, *Zadnost*... those are really the first games that will be coming up in Studio 3DO that we've developed from scratch. So that gives you a taste of where we're starting from and we think we're going to be able to get better over time as well.

Edge: M2. It's been 18 months since you first hinted at its existence. Where is it now?

TH: We've made really good progress on the M2 technology, which is going to be completed this year as we originally forecast, and we're just in the process now of having the foundry fabricate the second version of the custom chip set. Even with

Continued next page

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3DO M2 where now?

the first version of the custom chip set we've been able to start manufacturing and supplying development systems to software developers in the last month or so. You're going to get an exclusive look at M2 hardware this afternoon. Now we've got some real demos running on real hardware. Of course, you know it takes a while to develop really pretty looking artwork and lots and lots of scenery, but with a machine that is that capable, you won't expect to see a tremendous amount of scenery this afternoon that is actually running on the M2. But you'll get a taste of what the hardware is capable of.

Edge: You've been in the game for a couple of years now. Has the market followed your predictions or not?

TH: OK, looking at the marketplace, it's finally moving from 16 to 32bit. Two years ago, when we introduced the first dedicated advanced CD system, a lot of our competitors didn't want to talk about any of the virtues of CD. All they cared about was cartridge, cartridge, cartridge.

Developers were still trying to learn how to use CD capability. Well, it's totally different now. Now, virtually everybody except Nintendo is doing CD products. Developers have figured out how to take advantage of CD capability and consumers are pretty lucky to find out how terrific CD capability is. And of course, Nintendo will be in the market next year. They're telling developers that they will process CD capability – it's not clear exactly what they're going to do. One of the things I think will be happening with 32bit is that it will have its first really big Christmas this year. A lot of time and effort will be spent by all the companies to explain 32bit technology to the consumer and explain the benefit of CD systems to consumers. In many ways, the intrigue of the Saturn and the PlayStation will just really help speed up the development and the growth of the 32bit market and speed up the transition of the 16bit customers.

I think Nintendo will do the same thing next year, to speed that up. We thought we'd have a really good shot at a significant share of this market. I don't think anybody's going to dominate the market – it's going to be carved up.

Everyone has their strengths and weaknesses. We feel that our strengths are that we're the price leader, we're the value leader – you get a lot more for £299 than you get from the other systems. We also have by far the best software library, and

that's important not only for the consumer but also for the retailer. This is because they're not going to make money on hardware, particularly Sony and Sega hardware, they're going to make money on software. There's not much of a library for the other formats this year. And we're the only company that offers an upgrade path, so any consumers that are looking at this technology are already aware of 64bit capability and are already starting to think that they're making more of an investment and will appreciate 3DO a little bit more.

Edge: Let's go through your competition. Nintendo are the big unknown. What do you think of them today?

TH: Nintendo is an incredible company. They're a great marketing machine and have done a



have more power than they really need, but it's just going to be a cartridge machine and in some areas it has important bottlenecks that will keep it from being a really superior CD machine. They've got an awkward decision to make here, as to whether they want to have a really expensive cartridge product that may not be cheap enough to drive a lot of volume or have a product that's basically the same price as the competing 32bit CD machines – but it's going to be a tough decision for them. It's certainly not a good enough product to compete effectively against 32bit machines. So that's going to be a challenge for them. And they're not really even in the market yet and so that's also a problem for them. And you can see that Nintendo is

fabulous job in the last year marketing products like *Donkey Kong Country*. I think they'll continue to be very successful doing that. There's a lot that's right about what Nintendo is doing. I think there's also a lot that's wrong about what they're not doing, because they've sort of allowed their position in the platform market to decline and they've had a steadily decreasing market share now for about six years. And what they're going to bring out next year with regard to the Ultra 64, I don't think is going to totally turn that situation round.

Nintendo, because they're Nintendo, will be able to sell a lot of anything they introduce, I think they'll prove that with *Virtual Boy* – they'll sell a surprising number of those and they've got a lot of marketing power. But looking at the Ultra 64, it was a product that was invented in 1993 and will not be delivered until 1996. The total industry and marketplace will change in that period of time. It's not clear to me that there's really a market for a \$200 or \$250 cartridge system by 1996. Consumers will understand CD capability and what its advantages are and they'll want high performance if they're expected to spend \$250 on a machine.

First of all it's basically a 32bit machine, there's nothing 64bit about it. It has a 32bit CPU, it has a 32bit data bus and it has a 32bit memory bus. There's no 64bit anywhere about it. And what they've done is, in some ways, over-architected to

struggling for them to close their UK office, for example.

Sega. Look at the Sega CD and the 32X, the last two products they introduced before the Saturn. They were assuming that by having prices below \$200 they would generate high volume, and all they did was introduce products that confused customers, had surprisingly short life cycles, and in a relatively short space of time their sales volume started to trail off. Now they, of course, criticised 3DO for some of the same things, but over time our volume is going up. That says something very different about consumer acceptance of 3DO. Then Sega brought out the Saturn, which is a very expensive machine to manufacture, so they have to sell it at a higher price point. And now that you see products like 3DO at \$299, \$399 is starting to look like a pretty expensive price point for a comparable system.

Of course, Sega has also had some financial problems. They've had big layoffs in many of their organisations. They've really seriously trimmed back their Canadian operation. Look at the third party picture for the Saturn. Saturn has been available as a technology to the developers for two years now, it's been for sale for about 10 months and it should be here in the US, but where's the third party software? I think that reflects a real lack of endorsement from the third party community. And we feel pretty

And then there's...

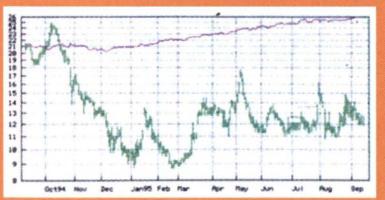
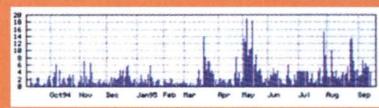
Flying Nightmares

A very appropriate name for Domark's dismal flight sim. The cockpit takes up half the screen, the ground is almost entirely untextured and the frame rate chugs along. In fact it's more reminiscent of a three year old PC game than a 32bit console.



comfortable with our ability to compete with Sega. We're now selling at a lot of the same stores that they're in even though they have feeder stores which are one of the places you have to go to get Saturn - 3DO is very widely available, even in the same stores that they're in we're outselling them in many cases.

Sony are a very formidable new company. I think they've gone through two phases already. They're about to go to a third. The first phase, everybody was saying, 'oh Sony's the newcomer, they don't understand the business, they'll probably screw up, and they've had a series of failures in the digital world so why should we assume that they'll know what they're doing?' It



3DO's share prices over the past year. The top shows value and the bottom volume of trading. Note the E3 surge early May.

then went into a second phase, where 'Sony's going to take over, they're going to have 100% of the market share, everything they're doing is perfect, they're perfect, they're perfect, they're perfect.' OK, well that seems to have come to stop about 30 days ago.

The first thing they did was they raised their licence fees in Europe to about

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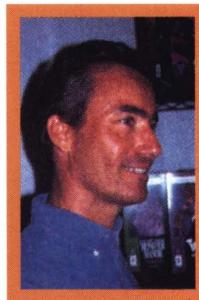
3DO M2 where now?

twice the normal licence rates in the history of the industry, so that took a lot of people by surprise. Then they shut down their Canadian operation, then at the last minute before the US introduction they completely changed their retail programme. That shows a lot of confidence in what their first plan was! Then Mr Race departed, so... it doesn't look like everything's completely perfect there.

What I would just point out about all of the competitors - 3DO, Nintendo, Sega, Sony - we've all got our strengths, we've got our weaknesses. It's going to be a battle, everybody's going to get their share of the business and nobody's going to be a big winner, nobody's got it all figured out.

Edge: When will the M2 be available on the shelves?

TH: Well, as I said earlier, we're right now not trying to commit to a specific time frame because we want to base that decision on when we have a mass of good titles, and it's just too early to forecast how long that will take. You can make some theory, which is that normally it takes a year from when you have development systems to get some good titles and in some cases, if you're developing a really good, original title, it might take 18 months. But there are some things about M2 development that allow really great software to be developed more quickly than that: first, it's very similar to developing software for the first generation 3DO. We've heard estimates from 6 to 9 months of development time for good titles from EA and Crystal Dynamics. Second, we've got tremendous interest from many of the arcade game companies because M2 is such good

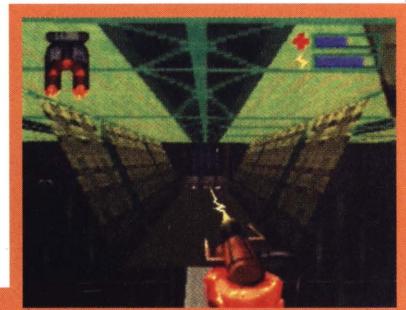


technology. They want to use it in the arcade, and then it's really easy for them to produce a consumer version of the same game. And to port a high-end 3D arcade title to M2 is actually very straightforward. In the past, for something like, say, *Virtua Fighter*, there are a lot of features missing from hardware like Saturn, so it puts you in a situation where you're having to redo a lot and work round a lot of problems. M2's actually better hardware than what's in the coin-op market right now. So, porting to M2's actually very easy. So again, a lot of the coin-op companies have told us that a high-end, port-up game could be ported over in maybe 6 months.

Edge: M2 as a coin-op has obviously fueled rumours of deals between Sega and 3DO. What do you have to say about this?

TH: Well, I can't tell you anything about any alleged deals. When we have an M2 deal to announce, we'll announce it and I can't really comment on any speculation about who we might do business with.

Edge: How will you keep existing 3DO owners on your side while opening M2 up



PO'ed

Produced by American codeshop Any Channel, *PO'ed* is shaping up to be a capable take on the *Doom* theme. Despite having a less than ideal screen update, its graphics are very competent.

tens, but I don't know the exact number. We're not trying to do what we did last time. It just doesn't make any sense to do that, so what we want to do is, instead of that shotgun scattering approach, we want more of a rifle shot approach. We think that it really takes a relatively small amount of really good titles to sell this kind of hardware, so we would rather work with a more select list of companies who have the

to the new consumers? Will we see both add-on and standalone units?

TH: Yeah, we'd like to eventually have both configurations. The important thing about the upgrade is that it fulfills a commitment that we've made to the customer and that's a logical growth path for anybody that has a 3DO system today. The importance about a standalone machine is that you can integrate and design something that is cheaper to manufacture. We really want to target new customers with a standalone unit in 1996/7.

Edge: The bottom line. How many different developers are out there actually with systems, working on exclusive M2 projects?

TH: It's not that many so far. I don't know the actual number - it would be in the

interest and the capability and then over time we'll expand.

Edge: When you started out, you talked about 3DO becoming the next global standard. But you're now saying that you'll just take a large market share. Isn't this a serious down-grading of your dream into an acceptance of something less?

TH: Well that's always been the dream that we've had. I don't know if you're familiar with the movie *A Bridge Too Far*. General Montgomery is a really brilliant innovator and military thinker, and he came up with a really brilliant idea there which he called Operation Market Garden, and that's a little of what 3DO tried to do. So I think a lot of the excitement of 3DO was that we thought we could pull it off. OK, so we didn't get to that last bridge. In looking forward, that's still the dream, that's still the goal, we still want to continue to make business decisions that will move us in the direction of that opportunity, but now we understand that it's really difficult. So, in the same sense that Operation Market Garden hoped to end the war in 1944 and that did not happen, the war continued for some time, so the war in the market place will go on for some time.

Death Keep

The follow up to last year's lukewarm 3D roleplaying title *Slayer*, SSI's *Death Keep* utilises an updated polygon engine which generates a markedly more impressive 3D game world. Unfortunately, the individual level designs lack imagination and are conspicuously short on character.

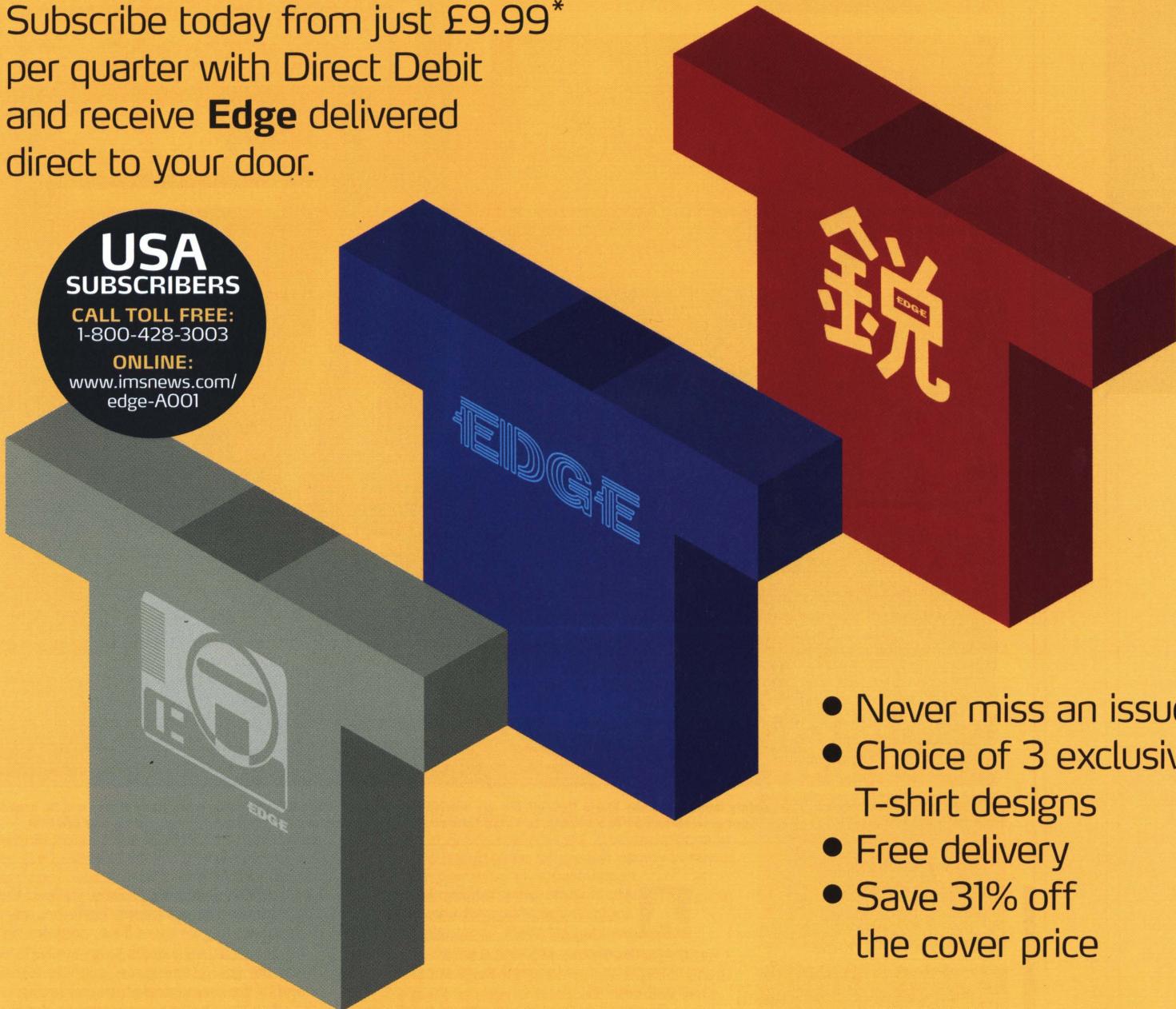


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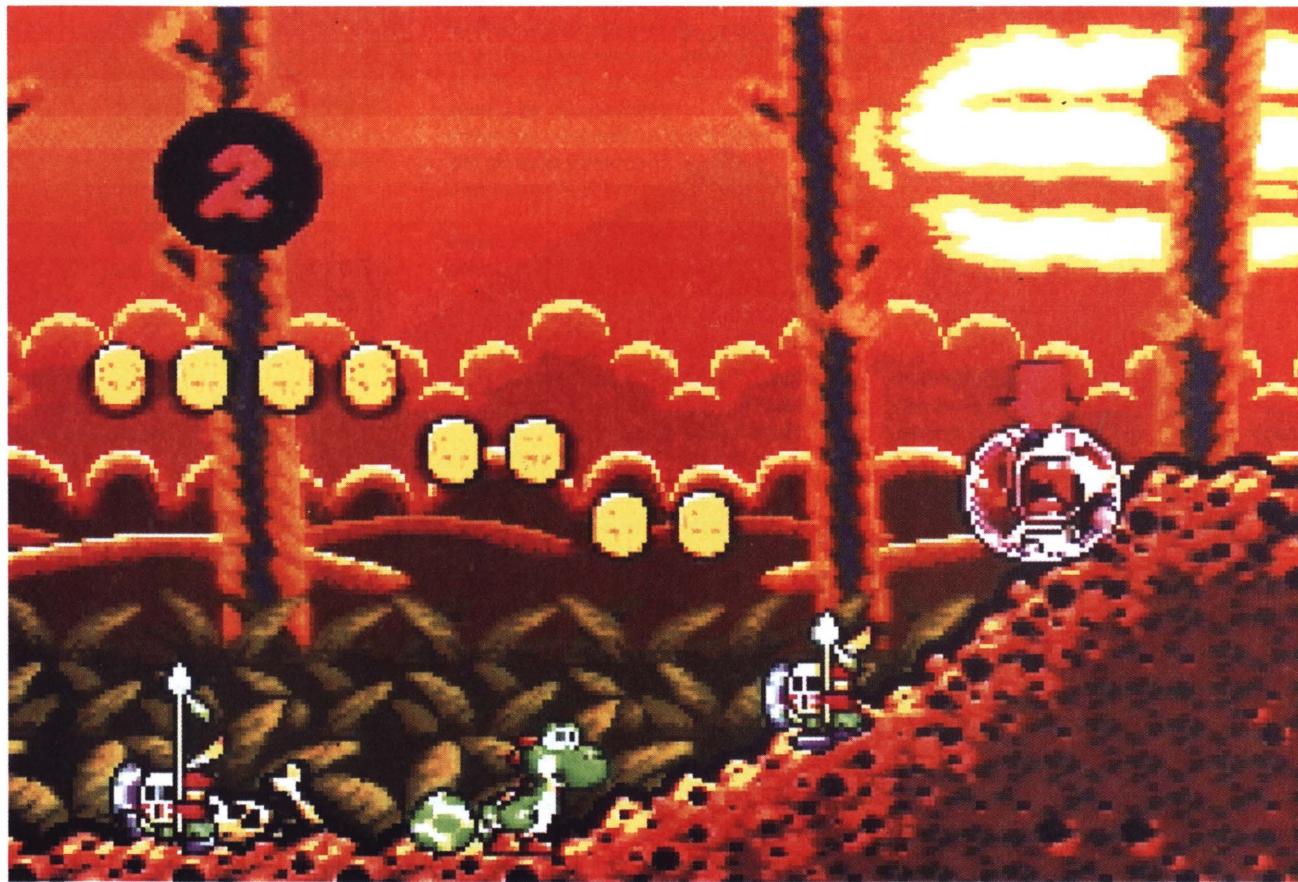
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Yoshi's Island

Super Mario World 2



The object of *Yoshi's Island* is to safely transport Baby Mario through the six worlds in the game. Should Yoshi take a hit, Baby Mario will be knocked off the amphibious one's back and float around screen in a bubble. If Yoshi fails to retrieve him before a timer reaches zero, that's one life lost

Format: SFC

Publisher: Nintendo

Developer: In-house

Price: ¥9800 (£73)

Release: Out now (Japan)

October 2 (US)

February (UK)

A Mario game without Mario? What could Shigeru Miyamoto have been thinking of? What he usually thinks of, of course, namely creating a game that's as enjoyable as it is innovative, as compelling as it is charming.

Designed to take advantage of the Super FX cartridge chip which allows large scale object scaling and rotating, *Yoshi's Island* is an example of what every good videogame should be – a fusion of technology and creativity, each enhancing the other.

The essential elements of the *Super Mario* gameplay, that has sold 117 million cartridges to date, remain unchanged in *Yoshi's Island*. The two-button run 'n' jump control mechanics

with which *Super Mario Bros.* defined the platform genre are intact. There are still coins to collect to gain extra lives, enemies can still be destroyed by a quick jump on the head, and the goal of the game is still to reach the end of the increasingly tortuous levels.

But it's what's been added to *Yoshi's Island* that raises it above other platform games. The discovery of these new features is a major part of the pleasure of playing.

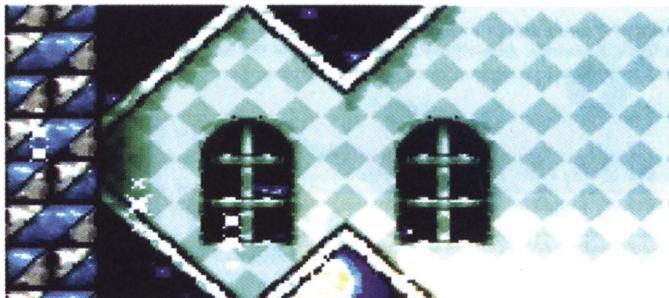
First, there's Yoshi himself. Second billing in *Super Mario World* has given way to a starring role in the sequel, and his abilities are the starting point for the whole game. Most important is Yoshi's egg-laying power. Using his tongue, he can grab an enemy character



With Nintendo's SGI-powered 64bit console still not finished and Virtual Boy failing to deliver anything you'd be able to bear playing for more than ten minutes at a time, it's left to old technology to show what the company's game designers can dig out of the locker. Here's one of the best games ever made.



The imaginative and beautifully-detailed levels in *Yoshi's Island* make great use of the SNES's colour palette and give the game a unique look



Complete every level, collecting 100% of the coins and flowers available and with all 30 life stars intact, and two new levels will be revealed on the map (top). The first world is an automatic scrolling trip through a lava-filled level. Ride the dog over the lava to reach the end safely

and, by means of a pull down on the joypad, swallow them. He then lays an egg which he can fire to take out other enemies or hit out-of-reach bonuses. Yoshi's other skills include limited flying and a ground dive used to drive objects into the ground and burrow through 'soft' blocks.

After eating a watermelon, Yoshi is temporarily able to spit out seeds like a machine gun and, after swallowing a fiery monster, he acts like a flamethrower. Then there are special transformation bubbles which turn him into a helicopter, a motorised mole, a submarine or a car, all of which are used to access new areas. Even Baby Mario can get in on the action – a star turns him into Super Baby Mario which makes him invulnerable for a while and allows him to speed through a level.

Touches like this are major additions to the Mario canon, comparable with the suits of

Super Mario Bros 3 and the introduction of Yoshi in *Super Mario World*. The innovations in *Yoshi's Island* allow for greater variety in terms of both gameplay and level design.

And, thanks to the Super FX chip, the levels reach new heights of fantastical experimentation here. There are simple polygon effects like drawbridges dropping out of the background, spinning platforms shaped like giant hexagonal tombolas, and see-saws teetering over lava pits. Characters are also scaled and rotated: instead of using individual frames of animation, enemies now roll backwards if Yoshi spits them out, and level bosses are giant-sized versions of standard enemy characters enlarged, before your very eyes, by the game's villain, the wizard Kamek.

But most impressive of all the Super FX-inspired tricks are the special levels. On one forest level, strange fluffy fungi float across the



Yoshi's Island puts its SuperFX chip to many inventive uses including this huge drawbridge. Walking in front of it causes it to drop and flatten poor Yoshi



Each of *Yoshi's Island*'s end-of-world bosses is a giant-sized version of one of that world's monsters. Arch-villain Kameka expands the monster before your very eyes



Eat one of the strange fungi on this forest level and the whole level sways as Yoshi comes 'under the influence'

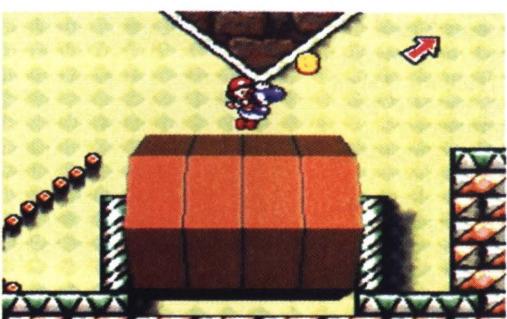
screen and if Yoshi touches one everything goes psychedelic: Yoshi's eyes widen, he starts to stagger around and the entire level wobbles from side to side in parallax, with the background wobbling in a different direction. Another level sees Yoshi swallowed by a frog and fighting inside the amphibian's stomach – a stretchy-walled single screen. One fight with an end-of-world boss even takes place on a tiny moon – as Yoshi and the boss race around it, the moon and the whole background behind it rotate spectacularly.

Yoshi's Island boasts such a huge collection of special effects, tricks and creative flourishes that you could be forgiven for

thinking that it's a bit empty on the gameplay front. Simplicity was always the key to the success of the *Super Mario* games, and surely overdosing on extras would kill the heart of the game? Well, the *Mario* series has never been short of spectacular moments and *Yoshi's Island* merely takes things about as far as is possible on the Super Nintendo. What's far more important is the way all the effects are integrated into the gameplay and how challenging yet approachable the game is.

The task of transporting Baby Mario across each level is straightforward enough and cleverly handled. Should Yoshi be hit by one of the enemy characters, the tot is knocked off his back and floats off in a balloon. A timer counts down and if Yoshi doesn't get him back before it reaches zero, Kamek's minions take Mario away. To boost the timer to a maximum of 30 seconds, Yoshi can collect small walking stars stored in bonus clouds.

The tiny stars also serve another purpose: if Yoshi finishes a level with the maximum number of 30 stars and collects every flower and red coin on the level, his level score reaches 100. Finish all eight levels on a world

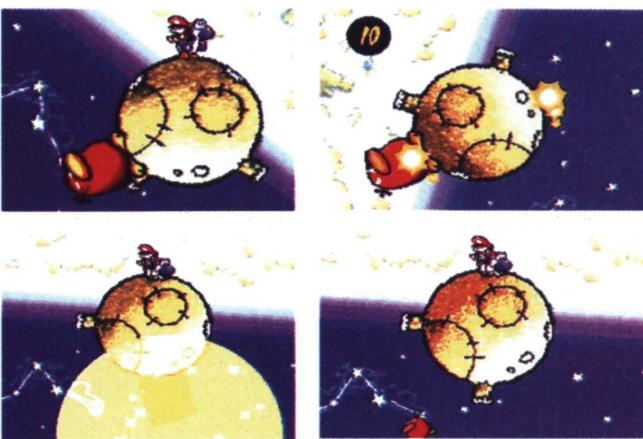


The Super FX chip, first seen in *Star Wing*, has been implemented to great effect in *Yoshi's Island*. Although the chip makes some scenery appear polygonised, the 3D effect creates stunning visual effects. This rotating barrel (bottom left) would not be possible without the FX chip

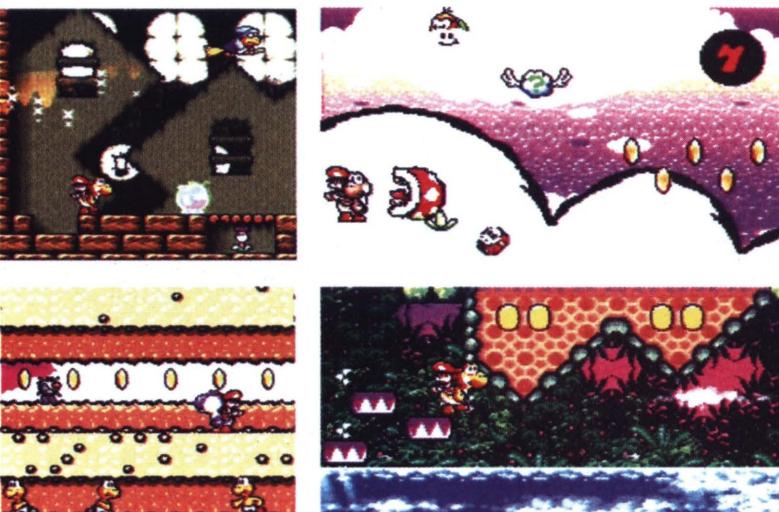
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Yoshi grimaces after taking a hit (top). At the end of each level, Yoshi hands Baby Mario over to another, different-coloured Yoshi (above)



At the end of World Five Yoshi is transported to a tiny moon to fight the boss. The entire screen rotates as Yoshi runs around the moon trying to jump on the tree stumps and push them out the other side into the boss



Kamek creates a boss (top left), up among the platformless clouds (top right), spitting watermelon pips (above left) and walking on water with a platform wheel (above right)



As in Super Mario World, the toughest levels are the ones that relentlessly scroll automatically

Fade To Black



Fade To Black's hero, Conrad B Hart, may look a little depressed on this month's cover (perhaps he's just got wind of Delphine's plans to focus solely on 3DO software in the future), but in game form he comes alive, thanks to his creators' typically swish animations. The French flair even extends to the install routine.

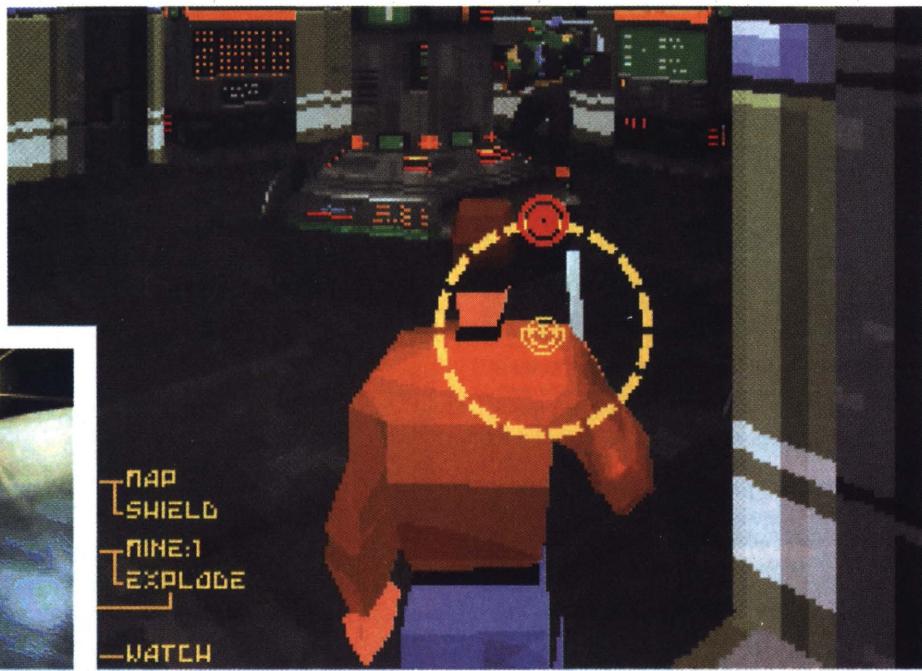
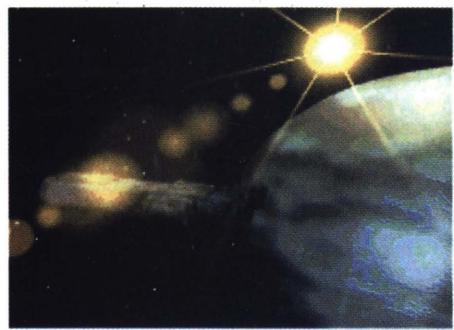
Format: PC CD-ROM

Publisher: EA

Developer: Delphine

Price: £45

Release: September



The yellow circle is a sort of scanner that pops up whenever danger threatens. Gun aiming is semi-automatic, and a little haphazard - *Fade To Black* definitely isn't a shoot 'em up. But it is a genuinely fine game



The intro shows Conrad drifting through space in his escape capsule, being sucked into a huge spaceship, and then being defrosted by the aliens

Delphine was creating interactive movies before FMV was even thought of. Its early adventures, *Future Wars*, *Operation Stealth* and *Cruise For A Corpse*, were thrillers, with intriguing characters and surprising plot twists. And with *Another World* and *Flashback* it combined fast-paced platform hopping with exciting cut-scenes to produce perfect action movies. With *Fade To Black* it has continued this trend, producing not only its finest game yet, but also an autumn blockbuster to rival anything starring Bruce Willis or Sylvester Stallone.

Delphine's first stab at 3D graphics isn't technically groundbreaking, though. There are no rooms above rooms here or six degrees of freedom. Sophisticated light sourcing is entirely absent, and texture mapping is used sparingly on the scenery, and avoided altogether on the



characters. But *FTB*'s overall appearance is attractive and thoroughly Delphine. The subtle pastel colours will be instantly recognisable to *Flashback* players, and the level of detail in some rooms is extraordinary - witness the intricately constructed spaceship in the hanger at the end of the first level or the bubbling liquid in the jars in the laboratory. Even the install program is a visual treat, with a spinning 3D menu and a great tunnel sequence when you exit from it.

Where *Fade To Black* succeeds most of all, however, is in creating a storyline that's strong and exciting, but which allows you to feel that you're moulding events rather than merely watching passively. While in reality you're just solving puzzles and performing tasks in a strictly predetermined order, the game is presented in such a way - with incoming messages from rebel HQ, and nasty



Arachnophobics will not find the third level to their taste, with its dark passages crawling with spiders and terrifying spike-wielding baddies

Fade To Black has many tense moments, not least of which is this stand-off with the prison governor at the end of the first level. Get the key, then do him

surprises from your alien foe – that it always seems fresh and spontaneous. And the most obvious route through a level isn't always the most productive – shoot the chef near the beginning, for example, and, although you may not realise it at the time, you'll be denied access to a secret room containing some exploding bullets.

Taking control of Conrad is probably the closest most of us will ever come to actually being James Bond. He sprints around the corridors with seemingly inexhaustible energy, leaping over force fields, opening lockers and ducking under alien bullets. Press the aim button and he whips out his pistol, the camera zooming in close to give a view over his shoulder of the target.

There are loads of Morphs to destroy (some of whom cunningly disguise themselves as civilians) and a variety of fiendish robot guards. And, as in the best action films, there are plenty of 'good bits': a tense stand-off with the prison governor near the beginning; an exciting shoot-out with some Morphs hiding behind crates; a great bit where you've got to escort a doddering old professor to safety while he keeps shouting 'Wait! Slow down! I'm only an old man!'; and some frightening guards who come running towards you down corridors and tear open your stomach with their claws unless you gun them down fast enough.

Even the pre-rendered sequences add to the game, appearing between levels to explain the intricacies of a plot which reveals more dark secrets about the sinister aliens we met



You must escort this professor to a teleporter, fighting off baddies, and the urge to shoot him

in *Another World* and *Flashback*. While Conrad's been away destroying the alien planet, it turns out that the aliens have been invading Earth. Most of humanity has been enslaved by them, but a small resistance group is refusing to succumb, and Conrad joins up with them. As the game unfolds, the aliens turn out to be rather more sophisticated than the dumb guards we've met so far.

The only flies in the ointment are the death scenes – when Conrad takes one too many bullets, rather than seeing him die in his polygonised form we're switched to a short rendered sequence instead, which spoils the continuity a bit. Apart from that, and an absurdly complicated control system using at least twice as many keys as can possibly be necessary, *Fade To Black* is one of the most enjoyable PC games ever created.



Edge rating: **Nine out of ten**



Some day, all installation programs will be like this. Loading and saving, with its rotating miniature screens, is a pleasure to use, too

An audience with...



Photographs: Jude Edginton

EDGE
3DO:
Edge interview with Phil Harrison, director of SCEE communications
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SCEE communications director Phil Harrison is in buoyant mood following the recent PlayStation launch, not least because of the price point Sony was able to achieve, but concedes that "Rome wasn't built in a day", suggesting that his company's first console shouldn't be judged on the strength of its launch software alone.

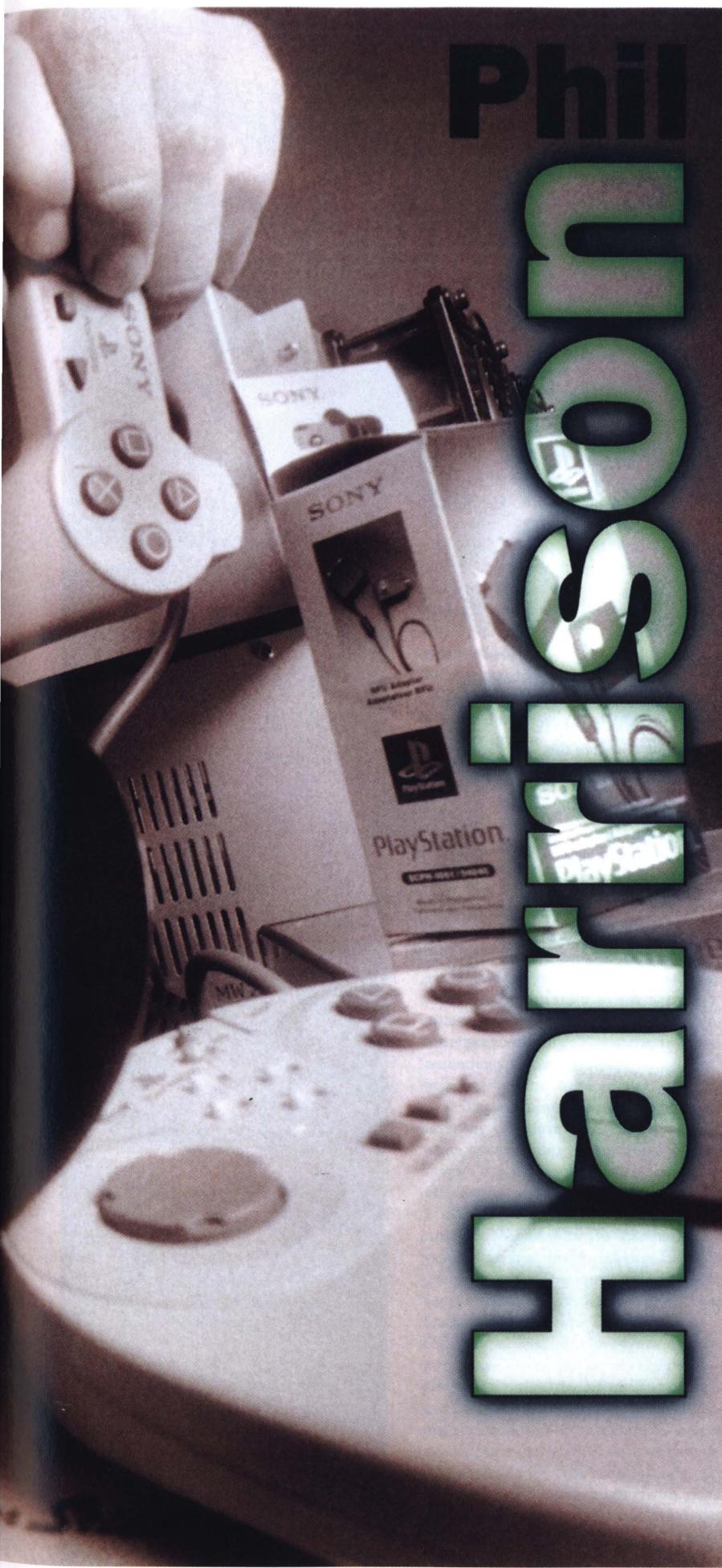
With its eagerly awaited hardware launch now upon us, Sony has every right to feel confident. As the company prepares to open the PlayStation floodgates, **Edge** quizzes one of Sony's most committed evangelists on what the future holds

Phil Harrison has witnessed the PlayStation's evolution since the very beginning. Having joined Sony in 1993 as product development director, he immediately went underground to start the console's European development and support group, working closely with the Tokyo R&D team, which was completing the hardware and OS design. One of his key objectives was to spread the PlayStation message to the development community in Europe, as well as to hire talented technical support staff and software engineers (to whom Harrison refers as the 'unsung heroes' of the European division). Now, as communications director, he is heavily involved with the European marketing strategy for the machine. **Edge** spoke to him at SCEE's London HQ.

Edge In personal terms, what has been the most rewarding part of the PlayStation's journey to market?

PH Simply that the reality of the finished machine exceeded my expectations in every way. In fact, as the development process went on, the games were getting better and the hardware and OS were getting stronger. Normally in this business it's the other way around, with the end result being somewhat underwhelming. On the whole, it's been a tremendous challenge and experience to follow the project from the very early days of hushed tech specs and a shroud of secrecy to the massmarket launch. I don't think there will ever be another opportunity like this one, and I sometimes feel like I've got the front seat on

continued next page



the most amazing rollercoaster ride you can imagine.

Edge Given that the PlayStation is a small grey box attached to a SNES-style joypad, do you believe that it is as innovative as that seminal Sony product, the Walkman?

Phil Harrison Well, the Walkman revolutionised the way people listen to music – taking it outside the confines of their home or car for the first time. It made people think differently about the part music played in their lives and became a cultural icon. The PlayStation is certainly a dramatic innovation but not an invention like the Walkman was in the 1970s.

Edge When you look at the PlayStation as a complete system, what aspect of the design appeals to you most?

PH Every part of the machine – from the sleek outer case design, the ingenious memory cards and the ergonomic controllers through to the chipset – has been so well designed. It feels like a complete product – no element has been rushed or compromised. It also feels like a Sony product – you know you're holding 40 years of innovation and quality. Then when you look at the price we've achieved, it becomes even more remarkable.

Edge Was the machine's development a long and laborious process?

PH Yes, but it was also a very interesting process. The very first thing I had was some written specifications which were, at that time, half-reality, half-blue sky. I just remember the first time I read through those specs and I thought, hang on, this must be a misprint! This can't be real! Then the next thing I saw was a videotape and that was about two years ago. That videotape was just a first inkling of what PlayStation was all about. It had some demonstrations actually coming off the chipset in prototype. This chipset was running about 30 per cent throughput and it was staggering, unlike anything I'd seen before. And then we had this first 30 per cent hardware prototype in at the end of 1993 – a great big box about the size of a desktop photocopier – and it was all grey metal and very, very ugly. And it had two huge fans inside it to keep it cool – it sounded like the thing would take off when you turned it on!

Edge That must have been around the time that developers got to see it...

PH We showed it to about 100 developers in December 1993. I remember reading the article in **Edge** [issue 6] and smiling at your frustration because no-one would tell you anything about the machine. We had everyone sign a non-disclosure agreement before we let them see the



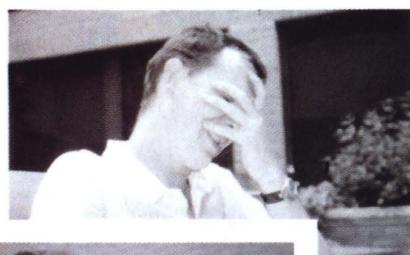
presentation. I invited the cream of the European developers to our office where we'd taken over an empty floor in the building and gave this presentation about the technology and the objectives we had for the business. It was great to see the best programmers and designers in the country with open mouths thinking exactly the same as I had when I'd first seen the technology – excitement mixed with a big dose of disbelief. We had to prove to one well-known developer that the demos ran off a real prototype and not an SGI.

Edge Now it's in the high street, is its superiority over the competition quite as pronounced as when it was still a secret?

PH Yes, completely. While PlayStation is clearly the most powerful technology, the real supremacy is the fact that the games are the best and that there are some really amazing games starting to appear over the horizon. I'm even more confident now because the reality of games like *Wipeout*, *Tekken* and *Total NBA* proves it's not hype. And it's not just me saying this any more – the whole industry is saying it for us now.

Edge So what in your opinion is the most impressive example of the PlayStation's technical abilities so far?

PH There are two. *Total NBA* is the first game nearing completion from within our in-house development studio in London and is a real tour de force when you consider the sheer volume of polygons that are being drawn and the speed and smoothness of the motion-captured animations for the players. I also can't



resist a smile whenever I see the *dinosaur* demo. I know we've been showing it for ages but it still stops people in their tracks.

Edge Has any game on the PlayStation truly lived up to your expectations?

PH I suppose *Ridge Racer* – mainly because the arcade game set such an obvious benchmark for everyone to use as a comparison. Although the polygon count is slightly lower on the PlayStation version, the gameplay is actually better than the arcade, and that's what counts – Namco did a fantastic job with the conversion in a very short period of time.

Edge Do you think that Japanese companies have irreversibly taken over as the world leaders of videogame design?



PH No, I don't. At Sony we've taken a global view of the software development investment in PlayStation and are working hard on three continents. I think the UK has the finest design talent in the world. Peter Molyneux is the best example, but Geoff Crammond, David Braben and Dave Perry are all British and can comfortably sit alongside the best in the world. There's also a host of unsung talent in this country who will find themselves added to the list.

Edge Has the PlayStation seen a game yet that defines what the machine is about?

PH Yes and no. Yes because the machine's all about delivering a fantastic gameplay experience that is challenging and sophisticated, looks amazing and sounds great – there are many games that fit that description that I've already mentioned.

But by its very nature that's a moving target. There are so many talented people working on the machine now, doing things that we've not dreamed about and in ways that we've not seen before, that the definition of quality is almost impossible

to define in terms of time. In the future we'll look back at some of the launch games and snigger, whereas we hail them now as paradigm shifts in interactive entertainment – that's what makes this business so exciting. The increase in the technology of game development yields a bigger and better result all the time.

Compare our business to the movie business – did awesome computer graphics make *Jurassic Park* a better story than *King Kong*? I suggest not. Some of the best movies ever made are now approaching 40 or 50 years old. While we may have a nostalgic fondness for the 8bit heroes of yesteryear, they don't compare to the new games of today. Try comparing *Tekken* to *Karate Champ* on the Atari VCS or *Ridge Racer* to *Pitstop* on the C64.

Edge What kind of software would you personally like to see on the console?

PH Well, I enjoy the adrenaline rush of a fast 3D game but I crave for something more substantial, more cerebral – a game I can relate to on more than a reactive level. I want characters that I can relate to, argue with, be scared by, be attracted to and that have an appeal beyond the quality of the graphics. To use the movie analogy again, I

think we can do the plots, the sets, the special effects and the camerawork incredibly well. We just need to work on the stories and the actors. This will add real emotional levels to gameplay that we're only just beginning to experiment with as an industry.

Edge If anything negative could be levelled at Sony so far, it's that it still hasn't proved it can develop a world-class videogame.

What is SCE doing to rectify this problem?

PH Firstly, I don't think it's strictly true. I would consider *Wipeout* and *Destruction Derby* world-class products and they were created by Sony Interactive Entertainment. Certainly, the review scores would back that statement up. If you mean why haven't we created a *Sonic* or a *Zelda* yet, then I'd

say Rome wasn't built in a day. Sony has built a world-class hardware system and we are now investing many millions of dollars, pounds and yen to grow our software development resources to create games to match. This level of investment means that Sony is backing the system 100 per

cent. Having said that, we do not seek to have a dominant position in the supply of software for the PlayStation. That would restrict the investment and creativity of our thirdparties, who are vital to our success – as a platform and as a business.

Edge It's been said that future PlayStation development could yield less spectacular technical advances than we might see on the Saturn. Is this a realistic viewpoint?

PH The thirdparties all say that PlayStation is easier to program than the Saturn because of our libraries and powerful operating system. We are constantly upgrading and improving the libraries we supply to developers so that game development is easier and quicker. This means programmers can harness more of the power of the machine – thus delivering greater value to the player. Sega do not take the same approach so I can't comment on how their games might improve.

Edge Do you think that CD-ROM has helped or hindered the videogame in the case of the PlayStation?

PH It has helped at every single level. Technically it has allowed us to design a system around the benefits of CD – with CD digital audio, full-motion video and

massive data storage for graphics and texture maps – something you can never do with a cartridge. From a creative software development standpoint, CD is the format of choice for the world's leading developers. They enjoy the freedom it gives them in terms of design, and it inspires innovation. When a designer can call upon CD audio and video to augment an interactive experience, the possibilities are endless. Cartridge development is a process of overcoming technical and commercial hurdles that get ever more difficult to cross. From a business point of view, CD allows publishers to innovate and take risks with games. Cartridges take months to make, cost so much money and have so many restrictions that publishers can't afford to experiment. They have to go for the proven game styles to make money – hence the fact that most Nintendo cartridge games looked the same and played the same. Third parties can't take creative risks when so much money is at stake. The CD model is much more conducive to creative innovation, because they cost less, hold more information and take days to manufacture.

Edge Sony has deliberately targeted the non-videogame punter for the first part of its PlayStation advertising campaign. Is everyone really convinced that the massmarket consumer will be prepared to shell out £300 for a games machine?

PH We've been spreading the message to a very wide audience – including all the games magazines. But it was a deliberate part of our strategy to reinvigorate the consumers who had moved away from games through boredom with the Sega and Nintendo market, and so we reached them through the style press. The main thrust of the advertising campaign will be truly massmarket. For the first time the technology can deliver an experience that will convert people who have previously resisted gaming as a leisure activity. Gaming is no longer a hobby or niche pursuit but a legitimate entertainment sector – alongside movies and music. The visual and audio quality of a PlayStation attracts so many more people to the concept of owning one. We have a PlayStation sitting in the reception of our office and its amazing how many people who have clearly never picked up a joystick in their lives are grinning insanely as they spin the car in *Ridge Racer*.



Many people who played games in the early 1980s who have either got bored or 'grown out' of their 16bit machines are tempted back by PlayStation. I test games on friends of mine who haven't been into games for a few years who are staggered by the quality of what they see. They are immediately interested – particularly when they find out it's 300 quid. They'd actually be prepared to pay more. I agree they are in jobs and have disposable income, but I'm also staggered by the amount of money people who are still at school will spend on a new pair of Nikes – over £100! Makes me sound old!

Edge What is the PlayStation's most dangerous rival – either now or in the foreseeable future?

PH Our biggest rival is apathy in the market, not a single company or product. What's important is that we're not just trying to beat one company or another for short-term gain but the fact that we are seeking to reinvigorate the market. In terms of consumer spend we are fighting for the same £300 that could be spent on a

mountain bike, a stereo or a couple of pairs of designer trainers. That's where the real battle is – ensuring that PlayStation is seen as a quality product with longterm benefits by a mass market.

Edge What solid reasons are there now for buying a PlayStation? What's to stop people waiting for the Ultra 64?

PH *Tekken*, *Wipeout*, *Destruction Derby*, *Ridge Racer*, *Battle Arena Toh Shin Den*, *Mortal Kombat 3*, *Total NBA*... There are seven good reasons between now and the end of 1995. And that's a pretty impressive start by any standards. Obviously I'm biased, but Nintendo haven't got proven technology to work yet and there are no games visible – there's nothing to wait for!

Edge And 3DO? Do you think it can fight back with M2?

PH No, not really. I don't think the development community will listen the second time around. Without a pricing, software or marketing strategy, how can they compete? 3DO was launched in a tough market dominated by Sega and Nintendo. They showed that in order to be successful you need strength in many different areas: brand, marketing, software catalogue, technology, consumer price, manufacturing supply and retail trade support. If you lack one or more of these you seriously effect your chances.

Edge What kind of lifespan can PlayStation owners expect from their machine?

A long and happy one! We designed the machine to last – we are not intent on the obsolescence and self-destruction of something we've worked so hard to get right. The strength of the software in development will take us comfortably into the future.

Digital Camera

Photographer of the Year 2007

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Sega's commitment to the racing genre continues in earnest with a Saturn coin-op conversion that should make amends for *Daytona USA*'s sloppier edges. All this and without even making use of AM2's Sega Graphics Library. Wonder what patent-pending special feature AM3 has planned for the time attack mode?

AM3

AM3's *Sega Rally* is set to shift the Saturn's stature up a gear when it is unveiled at the end of the year. **Edge** meets its creators and test drives its arcade successor



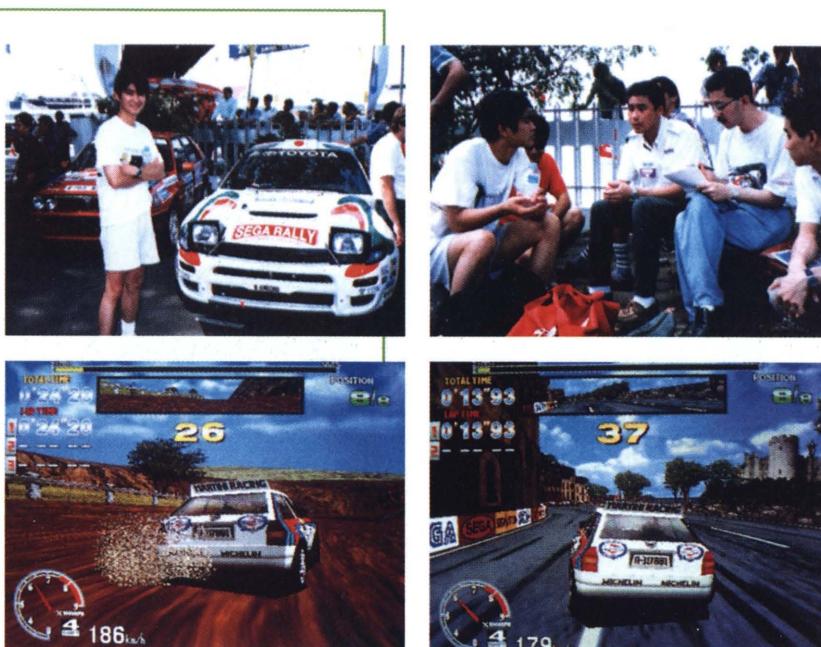
Manx T.T. Super Bike (above) is the latest arcade racer from AM3 (HQ, top) who also created the hugely successful *Sega Rally* coin-op - now on its way to the Saturn

Format: **Saturn**
 Publisher: **Sega**
 Developer: **AM3**
 Release date: **December**

Sitting in the consumer department of Sega, near Haneda airport in Tokyo, are Atuhiko Nakamura and Tetsuya Mizuguchi – both key figures in the development of the Saturn conversion of *Sega Rally*. Nakamura is *Sega Rally*'s director, and Mizuguchi is producer of both the Saturn and arcade versions of the cross-country racer.

At this stage the game is approaching 60% complete – there is no background music and a distinct absence of a co-pilot's voice to guide players around the winding tracks – and yet it is already a convincing replica of a state-of-the-art coin-op. The background graphics are almost finished and all four tracks have been implemented to an impressive level of accuracy. Only the difficulty setting and the finer side of the car's handling remain – elements that usually take time to be perfected.

There's no doubt that *Sega Rally*, along with *Virtua Fighter 2*, authenticates the Saturn's much underrated 3D abilities – it's easily the most impressive example yet of the Saturn's abilities. The game runs at 30fps (instead of *Daytona*'s 20-25fps), there's little visible scenery update, and the programmers have even managed a full screen display, which is something they couldn't manage in the NTSC version of *Daytona*. In every respect, *Sega Rally* is as



The development of the *Sega Rally* coin-op took ten months and included a trip to the Indonesian Rally where project leader Tetsuya Mizuguchi (top) met famous drivers

There's no doubt that *Sega Rally*, authenticates the Saturn's much underrated 3D. It's easily the most impressive example yet of the Saturn's abilities



well crafted and impressive as *Ridge Racer* on the PlayStation – as reassuring for Sega as it is for Saturn owners.

Edge spoke to both men shortly before the JAMMA show where a more complete version of the game was shown.

Edge There are huge differences between the Saturn and Model 2 architecture. How do you convert such a processor-intensive game to a less powerful machine?

AN It's a little bit technical to explain, but essentially we're making a new game using the same data. The program itself is completely different – because of the differences between the Model 2's and the Saturn's screen refresh rate we had to re-program the game from scratch.

TM It's not possible to make a direct conversion. First, the number of polygons used is different on both versions.

Moreover, the polygon textures are very different. The Model 2 uses some monochrome texturing while the Saturn uses full-colour textures. Because the Saturn version displays fewer polygons, we needed to use special techniques to create the impression of 3D.

Edge Will the Saturn version of the game replicate the arcade version? If no, what are you going to change?

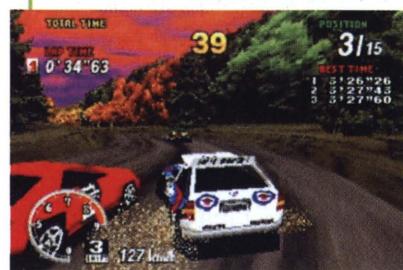
AN Generally speaking, it will be very similar. The game will include an arcade mode identical to the arcade version.

Continued next page

However, for obvious technical reasons the conversion cannot be identical. The arcade version used a Model 2 board and the Saturn version's resolution is, of course, lower, but fans of the arcade game will experience exactly the same sensation of driving when playing the Saturn version. We are also making an original mode for the Saturn game which lets you customise certain aspects of the car including the suspension, traction and transmission. These aspects directly affect the handling of the cars.

TM Because the arcade *Sega Rally* was written specifically as an arcade game, we're now working in co-operation with the consumer team and realising those features that will interest the home player. For the home version we are considering these more precisely, like tyre settings for example. In essence, however, we both really like cars and want to make a game with as much realism as possible which, of course, is easily understandable by the player. But we also want to make a game that's realistic for the mainstream as well as satisfying die-hard fanatics [known as 'otaku' in Japan]. For example, in order to make the 'time attack mode' more interesting we are going to include a special feature, but we are currently applying for the patent so we can't talk about it.

Another new point will be the 3D sound – we want the Saturn sound engine to be far superior. Of course, as with *Daytona*, it will be possible to use Sega's steering column rather than a joypad. We would also like to include a new car in the Saturn's original mode, and add another



The tracks from top left, clockwise: Desert, Forest, Mountain and the glorious Lakeside



Fans of the arcade version will experience the same sensation of driving when playing the Saturn version. We are also making an original mode for the Saturn



Sega Rally impresses most when the cars take off (approaching jump, top). Atsuhiko Nakamura (above) is head of the consumer software team behind the Saturn conversion

special stage – if we have time to make it, of course.

Edge Are you going to include different driving views in the Saturn version, such as inside the car, outside, from above etc?

AN The Saturn version will have the same number of views as in the arcade – two. The arcade mode will be exactly the same but we would like to add a supplementary view to the Saturn's original mode. The camera position would be higher, but nothing has been finalised yet. First we want to make a perfect conversion of the arcade game. Then we will make an original Saturn version with supplementary points and options. We could change many points in the conversion but we don't want to lose the arcade feeling.

Edge Racing games are often enhanced by a link-up facility. Will it be possible for two players to compete at once?

AN After finishing the arcade-perfect conversion we will consider it. In a few weeks we'll choose one of a few options –

split-screens, link cable etc – to implement. The main problem is that of processing power. With two players, the Saturn has to deal with twice as much data as before, meaning we may have a lower quality game, lower quality textures for example. It is not worth sacrificing quality just to make this sort of game.

Edge How many polygons are needed for each car?

AN In comparison with the arcade, the number of polygons is lower. The arcade version, with a Model 2 board, has a more precise car with better details. Although the Model 2 is more powerful than the Saturn, the design techniques utilised are different, so ultimately the Saturn's cars are quite similar.

Edge Many games rely on the knowledge of the development teams. Are the teams for Saturn Rally and arcade Rally the same?

AN No, they are completely different, but Mr Mizuguchi is co-ordinating each team in the same way.

Edge In the present version, the cars seem very speedy and the stages are almost finished. In fact, the game seems almost complete. With the release being slated for December, what is left to do?

TM The game may look almost finished, but we have many things to tweak, like the game settings for example.

Edge Is the game using the new OS system? [the SGL, Sega Graphics Library, that was developed by AM2 and allows for better 3D graphics on the Saturn]

TM Not at all. The OS was incomplete when we began the project. But even without the new OS we succeeded in



To be honest, I really didn't believe we could make a conversion as good as this. The speed of the game is superb and I'm very satisfied

The coin-op's Model 2 graphics are much more detailed than in the Saturn version

making a good conversion. We have some very good programmers in our team.

AN In particular the programmers have created some excellent clipping techniques – they are very precise and are more sophisticated than those in other driving games. You can notice this most when the car is moving extremely slowly – the update of the track is very precise.

Edge How many people are working in your team, and what experience do they have with racing games?

TM We have about six designers and programmers. One of the staff, Mr Hatori, did Virtua-Racing Deluxe on the Mega Drive. Personally I'm a supervisor and the only member of staff from the AM3 team.

AN When forming the Saturn development group we tried to employ a special team of programmers and designers specialised in car racing games.

Edge AM3 is getting a reputation for superb arcade games. What new projects do you have in the pipeline?

TM Well, we have Manx T.T., which is based on the British race in the Isle of Mann [the team spent time out there gathering data for the game]. We've adopted the same control system as Hang-On, but placed the game in a new, ultra-realistic cabinet.

Edge With racing games in vogue, do you think Sega Rally has any competition?

TM Maybe Ridge Racer Revolution from Namco... until we see the finished Sega



The Saturn handles these high mountains on the third track surprisingly well

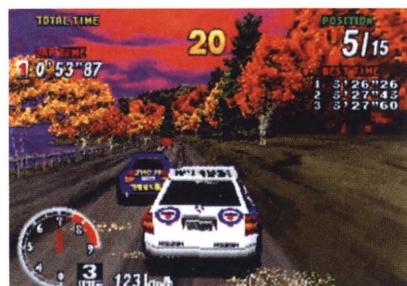
Rally in December we won't know, to be honest.

Edge Has the development schedule been slashed thanks to the knowledge gained from programming arcade *Sega Rally*?

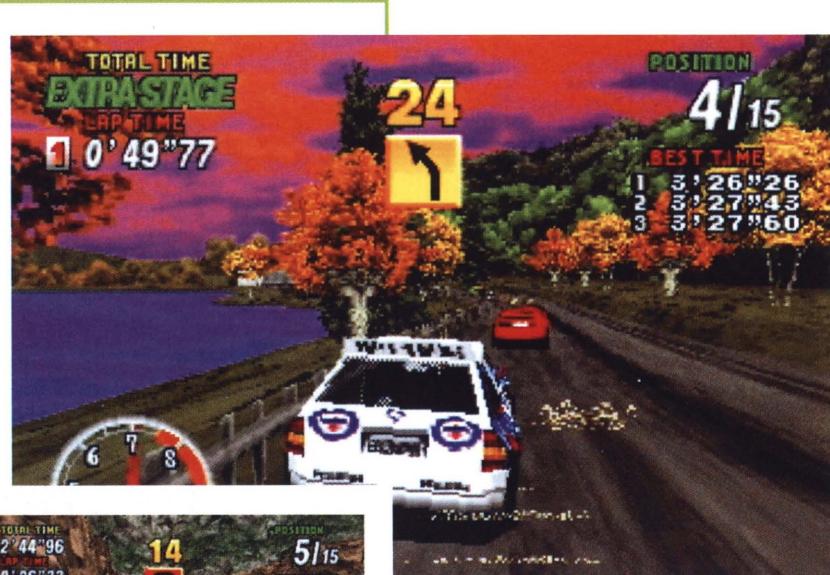
TM We began in April this year, meaning this present conversion has taken only six months so far.

Edge What extra work has gone into the Saturn version to separate it from the arcade version?

TM For the arcade version we spent two weeks measuring the different parameters of the tracks. For the Saturn version we also made some effort to improve the game. We consulted Mr Fujimoto [a rally expert], to assist with the new game settings. He was a kind of adviser. We also



The difference between the arcade and Saturn versions of *Sega Rally* are plain to see. On the left are the arcade graphics boasting a screen resolution of 496x384 and far more detail. The Saturn version runs at half the frame rate of its big brother (30fps) but still looks smooth



met him in Indonesia during the 1995 Indonesian Rally last July. We spent three days studying the cars and the way they drove. We examined tyres and made tests of driving techniques.

AN We wanted to make a very realistic game. However, for increased speed and hence better gameplay we also wanted to avoid complicated settings. We spent a long time studying real cars – fans of rally cars will not be disappointed by the driving sensation. The drift will be very realistic.

Edge As the producer of the arcade version of *Sega Rally* what do you think of the conversion?

TM To be honest, I really didn't believe we could make a conversion as good as this (laughs). The speed of the game is superb and I'm very satisfied. We are also on time for the release date – with a December deadline, we've got the time to perfect it. I suppose it helps that our team is very confident – everything we've tried so far has worked (laughs).



AM3 Gameography

July 1992	Wory o sagase	Variety
March 1993	Dark Age	Fighting
April 1993	Tittle Fight	Fighting sports game
September 1993	Sonic the Hedgehog	Action
February 1994	Jurassic Park	Shooting
March 1994	Dragon Ball Z	Fighting
April 1994	Star Wars	Shooting
	Hard Dunk	Sports
February 1995	Sega Rally Championship	Driving
May 1995	PakuPaku Animal	Puzzle

Format: Arcade

Manufacturer: Sega

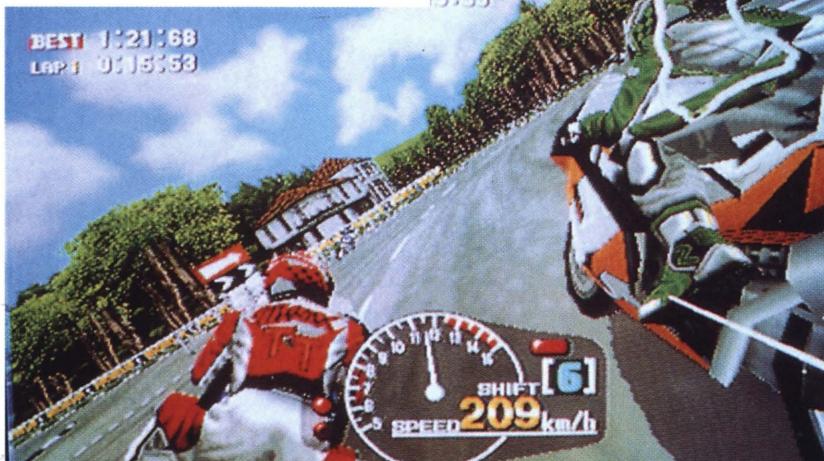
Developer: AM3

Release date: Early '96

Although the 3D engine will no doubt provide a visual feast, it's *Manx TT*'s realistic gameplay that is likely to turn heads. Like on a real bike, the player's feet do not touch the ground when riding. In other words, body weight plays an important part in the handling of corners, creating an unparalleled driving sensation.

When *Edge* saw the game, the innovative cabinet design was finished but the game was far from complete. The final game may change considerably.

With an eight bike link-up and fantastic overall feel, *Manx TT* will surely be another design achievement for AM3.



Manx TT is based on the British race in the Isle of Mann. We've adopted the same system as *Hang-On*, but placed the game in a new, ultra-realistic cabinet

Tetsuya Mizuguchi, producer



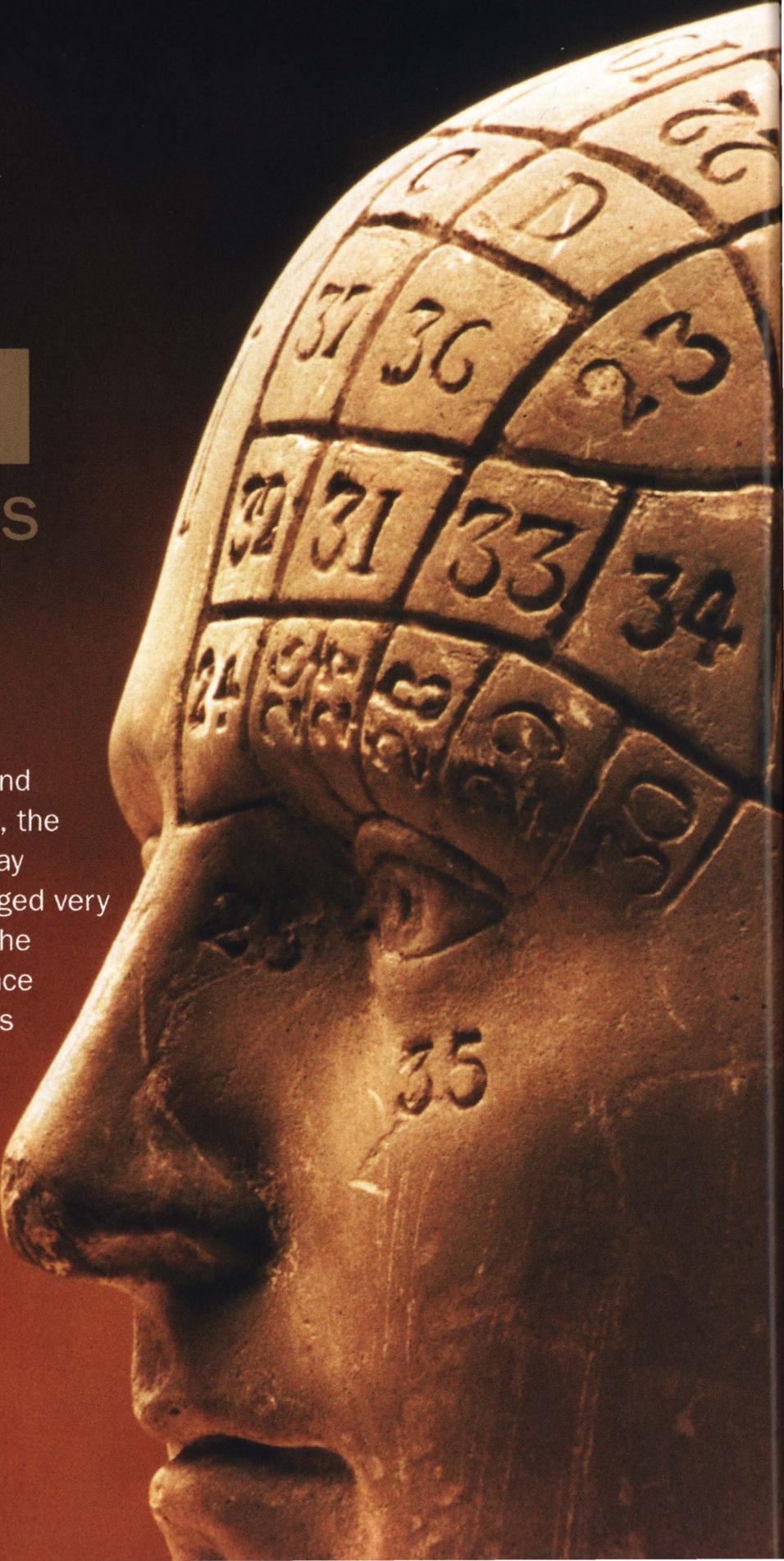
Just 20% complete, *Manx TT* is already emerging as a thoroughbred arcade racer. The game's producer, Tetsuya Mizuguchi (top, seen at the recent JAMMA show), is also supervising the Saturn version of *Sega Rally*



"If we're just going to have cardboard cut-out characters that you are choreographed around – in this world that gives you complete freedom of movement – they're essentially going to be boring," says Peter Molyneux. And so continues the journey towards populating games with proper artificial intelligence.

Mind Games

Whereas game graphics and sound continually improve, the way computers actually play against humans has changed very little. **Edge** ventures into the world of artificial intelligence to discover how developers are breeding games with minds of their own

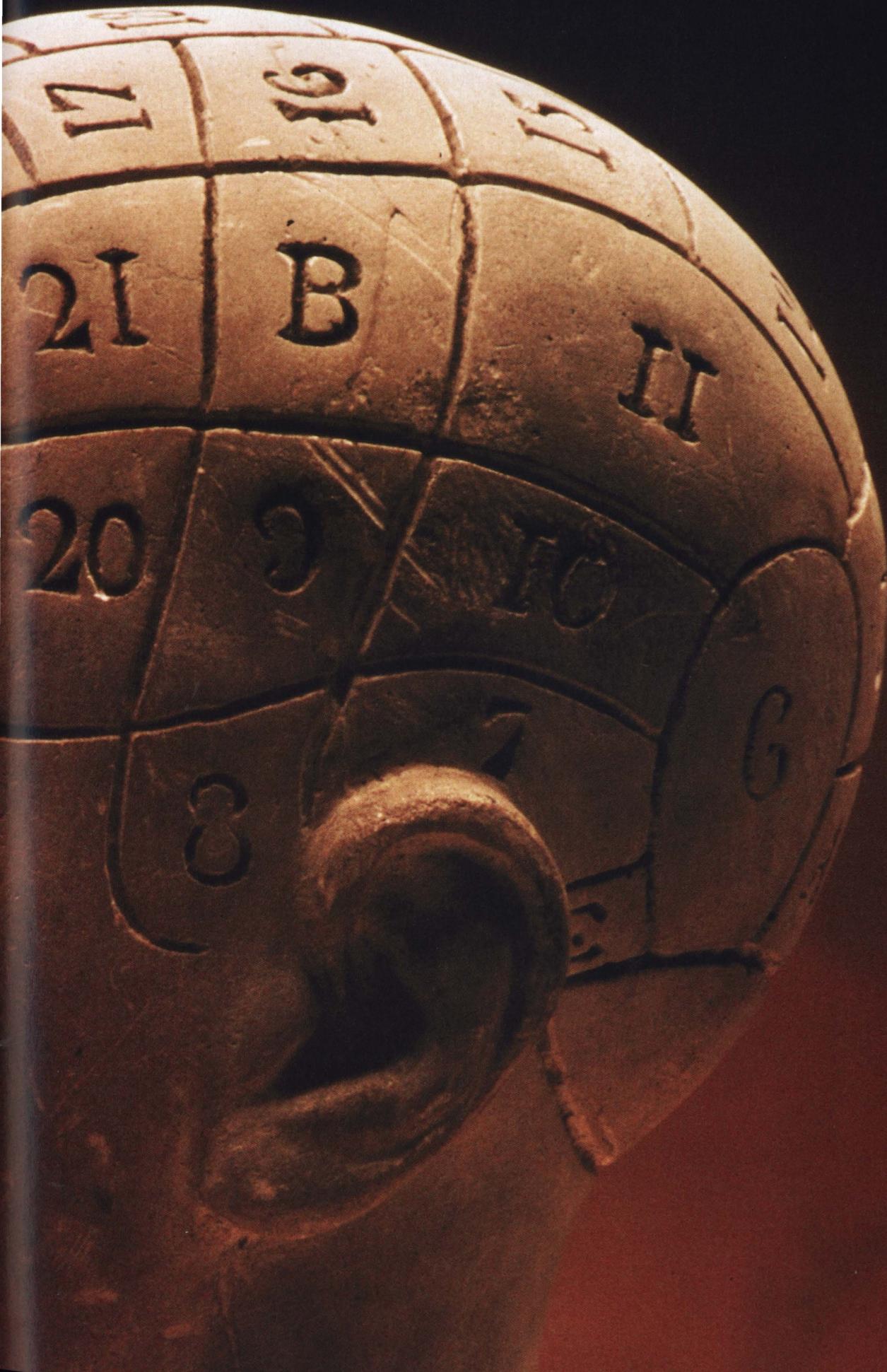


artificial intelligence

EDGE

magazine December 1995

EDGE27



artificial intelligence

Checkmates

Chess games have been the central focus of AI researchers' interests for decades. Early chess (mid-1950s) programs were created by traditional AI scholars as basic projects. They played relatively poorly. Once functional AI had been attempted, many began to work on the problem in earnest.

In 1967 an MIT programmer named Richard Greenblat created MacHack, a program that enabled the computer to choose its moves from a select list. In particular situations these moves looked intelligent. The program was far superior to anything that had been attempted previously, and it introduced the concept of chess computers to a whole new group of enthusiasts.

In the early '70s, the Association of Computing Machinery (ACM) added to the group's yearly gatherings a tournament between chess programs. After this event, rewards for innovative chess programs became mostly financial. In 1968, David Levy issued the first major computer chess challenge, betting that no computer could beat him in chess for the next 10 years. No digital challenger even came close.

Soon others got in on the act with their own rewards. Edward Fredkin, an MIT professor, offered a series of three prizes for beating him, one worth as much as \$100,000. Belle, a chess computer capable of processing 150,000 moves per second, won twice in 1983. Deep Thought, which interprets 700,000 moves per second, also beat him.

The Chang-ki Wei-ch'i Educational Foundation has offered \$1.6 million to the first AI program to defeat a master of Go, another traditional strategy game.



Chess games were responsible for the first ever artificial intelligence engines



The term artificial intelligence may conjure up images of 2001's computer, HAL, or William Gibson's Wintermute, but the reality is quite different. Marvin Minsky of the Massachusetts Institute of Technology (MIT) provides the best definition in Margaret Boden's book, Artificial Intelligence and Natural Man, calling it 'the science of making machines do things that would require intelligence if done by men.' If you've ever played a one-player game involving defeating enemies, you've faced an AI, however primitive.

The origins of AI closely parallel the development of the digital computer itself. Names like Alan Turing and John von Neumann, early computer pioneers, also developed early theories of AI. It was Turing who developed what is considered the seminal test for a true artificial intelligence. The Turing Test involves a human conversing via tele-type with a computer and a human. If he or she cannot tell which is the computer and which is the human, we can say that the computer is, for all practical purposes, truly intelligent. Researchers have constantly explored many avenues in the quest to build an intelligent machine. Some favour simulating a neural network on a computer. Others have tried creating programs that approach intelligence symbolically or by following a simple set of pre-made rules. Despite big promises (researchers in the 1950s predicted a machine that would pass the Turing Test by 1960), the quest for AI has made, at best, limited progress toward the ultimate goal of creating a true, thinking machine.

Consider the difficulty inherent in a computer understanding something as simple for a human as the different connotations of the word 'take.' The code needed for a computer to understand the differences between the phrases 'take a bath, take a hike, take some money,' and 'don't take that from him,' is not trivial, to say nothing of the many other ambiguous words and phrases in the English language. In order to make computers seem intelligent to an average observer, massive amounts of data are needed – and even data entry can be a problem. Structural decisions need to be made. Should information be just

introduced into the program, or should the computer be designed to learn for itself?

AI's greatest successes are not in attempting to make a computer sufficiently intelligent to function in the real world, but rather in total domination of a single problem, whether it's alphanumeric character recognition – without AI, we'd have no OCR (optical character recognition); a rules-based 'expert system' that can answer questions or solve problems involving a specific topic, like how to diagnose and treat a blood disease or fix a car; or total domination of a limited virtual world with pre-set boundaries, like, for example, a game.

Turing developed

a chess-playing algorithm that, typically, he used without a computer. Subsequently, chess has continued to be a benchmark

The origins of AI closely parallel the development of the digital computer itself



AI exercise (see sidebar, this page). But the first purely electronic game that most people associate with AI is *Adventure*, and it's more famous offspring, *Zork*.

Although the AI of the game wasn't incredibly advanced – 'we knew our environment and created it, instead of trying to do something really complicated like

teaching a robot to climb stairs,' says co-author Dave Lebling – the game's sentence parser, which enabled the user to interact with the game in plain English sentences instead of two-word commands, literally stunned the world. Here was a game that interacted with you nearly as well as a human.

Covered prominently in the popular press, *Zork* brought electronic gaming out of university campuses and into the public consciousness. In fact, games are one of the few means by which AI has made it out of the lab at all. 'It's probably been the most lucrative use for AI,' says Lebling. 'But I don't think what is being done in

The Genesis of AI: god games

To create a believable universe in which human-like characters walk around, react to circumstances around them, and, in a sense, have purpose, requires a highly impressive AI engine.

Most 'god games', like *Populous* and *Sim City* and *Megalomania*, enable players to interact with a computer world that carries without the player's intervention. 'We're trying to simulate what a player would do without making it seem so esoteric that you can't predict the future,' says Peter Molyneux,

founder of Bullfrog. 'For example, in *Dungeon Keeper*, each character possesses the major senses of a normal player. So, each of these AI characters can see, hear, and even smell. They realise when they are in danger or threat, and they feel frightened. By combining those attributes you can watch a character walk around the dungeon and understand why he took a left turn – because the right hand corridor is dark and he's just been beaten up and is afraid to get beaten up again. That's the



sort of artificial intelligence we're putting in now – where you can appreciate and understand the problems this character has throughout the game.'

This will make a huge difference in the way human players interact with games of the future.

Eventually, these games may become so realistic in their response that to some degree they pass the Turing test. If, as a gamer, you can't tell whether the nonplayer characters in a game are played by humans or by the computer, then one of the biggest



Peter Molyneux's Bullfrog has created some of the finest AI games in videogames history

goals of videogaming, the suspension of disbelief, will have been met, not through the use of more realistic graphics, sound, or control, but through the creation of more realistic personalities and lifeforms.

games is close to the state-of-the-art in AI. Developers have taken the state-of-the-art and simplified it to what you can do rapidly in a game and what you can do feasibly in a real environment. Videogames are kind of the domestication of academic AI.'

As with any other form of computer logic, AI fundamentally breaks down to a series of mathematical computations. Each decision the computer makes is based on the current value of a given set of registers. The tricky part comes in deciding how and when to look at those registers, how they interact with each other, what happens



Bullfrog's *Dungeon Keeper* has computer-characters who can see, hear and smell

when they reach a certain value, and keeping track of the entire mess while still running the rest of the program (all of the video, sound, and input devices) without ruining or altering the performance of the overall product.

In strategy games or RPGs, registers take the form of different human-like characteristics, like fear, a value that will determine how likely the foe is to run from a battle; aggression, how likely a foe is to attack without provocation; and even loyalty, how likely an ally is to put him or herself into danger for the sake of another.

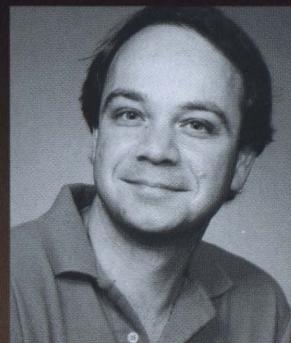
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Civilised AI: strategy games

Arcade and strategy games use very different kinds of AI. Unlike the fast-action decisions necessary for an arcade game, most strategy titles offer plenty of time for the computer to contemplate its possible moves. Unfortunately, all the time in the world won't help a 'stupid' game beat its human adversary. To create a satisfactory challenge, the programmer needs to create either an AI algorithm smart enough to understand every nuance of the game or a flexible set of rules giving the computer an advantage over its opponents.

Famous for games like *Civilisation* and *Railroad Tycoon* (two games considered to be among the best in AI), strategy

veteran Sid Meier explains how he creates computer opponents worth playing against. 'In *Civilisation* players face other



Sid Meier's *Civilisation* uses strategies theorised on paper

groups who compete directly. The game designer starts playing the game by himself, then moves on to figure out what works – and what works best – and then program those things into the AI. It's an evolutionary process.' In other words, most strategy game designers have to use the same process of first deciding a strategy on their own (on paper) that works well for a human player. They must then write an algorithm that enables the computer to emulate that winning playing style. In a game where you must play against other AI-controlled teams, the programmer must also figure out a way to

make this whole process seem human-like in its execution.

'*Civilisation* is somewhat unique in that it creates a peer situation,' explains Meier. 'You have a civilisation which you're in control of, and the computer controls other civilisations with essentially the same abilities and resources of yours. It's like playing a multiplayer game, only the computer has taken over some of the other positions. To set the difficulty level, we can handicap the AI so it requires more production points to create structures than the player. Or on the higher levels we can set it to where it takes less. In this way, we can take one AI routine and make it more or less effective, depending on the player's needs.'



artificial intelligence

Some RPGs also need to keep track of how a given NPC (nonplaying character) feels about the player, which is also handled by a set of registers that mathematically represent how likely that character is to help out, based on past interaction with the character. When the player angers the character in question, a specific value for reaction is lowered by the amount appropriate for the negative action – a few points for being overly curious, many points for killing his mother.

The next time the player comes in contact with this character, the chance that the computer will help the player out is modified by the new reaction value, and a decision is made. In this way, the computer is still able to represent the somewhat random actions of humans while maintaining a tie with actions of the past – a character you have made angry may still help you, but is less likely to do so than if you had been kind.

Lifelike personalities can be emulated by careful determination of what actions affect each character – a gruff old man may appreciate you being belligerent to him, whereas being overly kind may make him think of you as a sycophant. The more values there are to be checked, the more lifelike and three-dimensional an artificial lifeform becomes. Unfortunately, continually checking all of these values can slow gameplay to a crawl, not to mention the amount of time it takes in development. Unlike AI projects in research centres and universities, the goal of these games is not to fool people into thinking they are dealing with a real person, but to create a more realistic set of characters with which players can interact.

Arcade games like *Doom* use a much simpler system of intelligence, but one that

Artificial Turf: sports

Unlike creating attack patterns for a troll, intelligence for an alien, or troop movement for an army, sports game developers must deal with an audience which knows exactly how the players in the game should respond to a given situation. Furthermore, most sports games require the computer to make decisions in real-time, while interacting with stimuli from several other on-screen AI players.

'In order to make a game realistic, we tailor each team to a real NFL franchise,' explains Marsh Gardiner, assistant producer on *John Madden Football '96*. 'The Bills have to be likely to call a hurry-up offense, certain



Sports sims simply pick a play to suit the situation

teams will pass more, certain teams will run more, and some teams will run a 4-3 defence while some are more likely to choose 3-4,' he added.

'Individual AI players follow a basic playbook. When you call a play, you're actually calling up a set of moves for each player to follow. It's tricky because there's so many situations you have to be ready for.'

During the play, the defence reacts to whether the ball is pitched or not, and then certain players will pursue as is appropriate for that play. Receivers run routes, and if they haven't already received a pass, they will move about randomly trying to get open. It works like the real thing.

'Our latest and greatest innovation is to have the computer learn. Actually this is proving a little difficult because the computer can learn pretty fast and pretty well, so I think we're going to have to worry about the game being too hard. My ultimate dream is to have the game look just like the sport. I find myself going to football games and thinking 'Wow! Ours looks just like that,' or, 'Hmm there's something we're going to have to change.'



also attempts to mirror human response. Monsters that have the character in their field of view will rush forward (taking the shortest path available between them and their opponent) and attack using any weapons they have available. To keep this from breaking down into a large mass of demons flooding through the caverns following you wherever you go, the programmers have given the beasts the

equivalent of sight and hearing. If you move into an area from behind the field of view of the monsters contained therein, the registers that determine whether or not the creatures attack remain off. In terms of enemies' hearing capabilities, the game determines the distance a given beast can hear, and any gunshots or screams that take place within that field will force the creature into attack mode. The AI in

I.Q. test: action games

In most action games, opponent movement is relatively easy to handle – the computer has a restrictive set of rules and boundaries. But even though the algorithms may be easier to create than those in a role-playing game, developers must spend hundreds of hours achieving a solid play-engine to deliver competition that is neither too easy nor too difficult.

Joanna Alexander, co-founder of Zombie, explains the problem: 'It's the balance that's tricky. The



Beat 'em ups such as *Tekken* use complex attack strategies

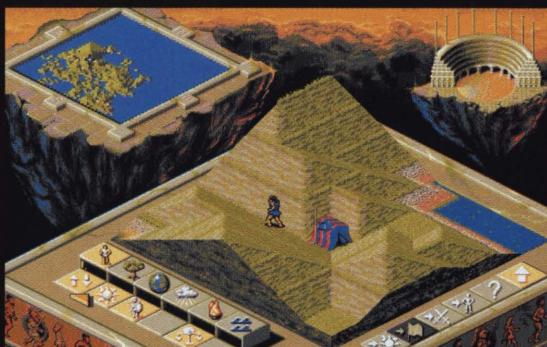
actual decisions of how to program the artificial intelligence is not all that difficult. You handle that by play-testing a lot. You'll

find it is something missing in a lot of both AI games and standard games, where there are divisions of speed and reactions. I don't think there's enough time put into games at the play-testing level and it shows in the end result of many products. You can have the greatest idea in the world, but if the game timing is wrong, your idea can be completely lost.'

Game balance is a huge problem with action game AI. Unlike a chess or an RPG title, there is no absolute way of testing whether

the AI will provide a challenge for players without being so good that the game is frustrating. Other than looking for bugs, this is the main job of the playtester. They log in huge hour counts playing games, looking to see if computer opponents are too easy to beat, too difficult to beat, or if they have certain repeated patterns that can be learned.

When the testers find a problem, minor adjustments are made to the game's algorithm to fix it. Now game development is starting to cost millions, this is even more important.



Populous II took the god sim and extended it into a slicker, more enjoyable game

Descent offers a few more tricks, like enemies that are smart enough to run when they've taken too much damage, and opponents who are smart enough to hide around corners to set up ambushes.

Military sims, such as flight simulators or tank games, use sophisticated systems to prevent the computer from knowing too much, and from being too predictable. If the computer knows the absolute best strategy to win every given conflict, and it follows that strategy

flawlessly, human players will at first find the computer is impossible to beat (not fun), but will eventually find the counter strategy to the computer's tactics and thus will win every time (also not fun). The answer is to create an AI that is limited in its decision making to information that lies directly around it, just like a human opponent. Even though the computer knows that you are

hiding around the next hill, the AI for an individual tank must not be allowed to acknowledge your presence until you are within visual range, show up on radar, or make some sort of signal that you are there. After this, the computer must access some sort of random movement and combat. Humans are so hard to beat in long runs of any game (including war) because they are capable of making decisions that aren't necessarily wise. By adding these flights of fancy to a simulation, computers are more fun to play against for beginners because they are capable of making mistakes, and more fun for veterans because they are harder to predict. With artificial intelligence, the beginnings of

simulating human behaviour is always adding the random element.

The sports sim uses an interesting set of conditions that let the computer choose from a list of different actions depending on outside stimulus. In football, for example, the computer must first decide what tactic to adopt. If it's a corner, the computer could choose for a long cross over the players, or a short ball to set up a one-two. If the previous shot was a long kick over the defenders, the computer may decide to go it alone. On a very basic level, all the computer is doing here is running through an extremely long set of 'if-then' statements tailored to make the same sort of decisions as the coach of that particular team. Once on the field, each of the computer players begins by following the basic pattern in the play that was called, with additional instructions to react to circumstances around them as they arise. A striker will follow his pre-defined pattern, and then try to stay open by avoiding any defenders. A defender will stay back and try to stop solo runs, but may leave short ones to midfield. As in role-playing games, several statistic registers are often used to determine how tough a player is, how fast they can get through holes, and how aggressive they are on defence.

Artificial intelligence is also capable of creating new game genres that players have never experienced. Where better and faster video brought us the interactive movie – a class of game that offers fantastic images with very little emphasis on gameplay, AI has the potential to create games that are not only fully interactive with the player, but which mould themselves to that person's wants and needs. One example of research being done in this direction is TechMagic's *Dogz: Your Computer Pet*. *Dogz* gives the user a pet that acts and responds just as a real animal would, within the confines of a computer world. As with an RPG, *Dogz* is actually using a complex set of registers to compute how the dog will react in any given situation, combined with a random factor that ensures the animal doesn't follow static patterns. There's more here than just standard screen saver behaviour though, the development team has given the user the ability to reward the virtual pet with treats. The dog eventually makes connections between performing tricks and getting treats, and becomes more likely to perform those acts it knows its master appreciates. Andrew Mayer, the director on the project, explains: 'It's real AI. If you stop giving treats for certain tricks, then the dog will start trying to do other things

Brave new worlds: RPGs

Creating artificial intelligence for a role-playing world is a unique development problem. This is due to the huge number of different locations, people, and objects that can be encountered during a play session. In Bethesda's new RPG, *Daggerfall*, the computer must keep track of the location of hundreds of nonplayer characters (NPCs) and their attitude toward the player – a value that always changes, not only as the player interacts with them, but also as they interact with friends, enemies, and coworkers.

'Just getting the critters to move intelligently through a completely 3D world can make for tough problems,' says Ted Peterson, *Daggerfall's* producer. 'In a shooter or action game, you

make a list of all the possible opponents because that's all you're likely to face. You figure out their movement, as far as how smart they are in finding opponents, tracking them down, moving in for the attack, and reacting to being attacked. The AI may have to worry about whether the enemy flees or begs for his life, but the possibility of an enemy spreading lies about you to your friends, or working to become King of



Spoletto, does not exist because this is an action game. 'In an RPG like *Daggerfall*, we started macroscopically. Combat is certainly a part of the RPG experience, but our first priority was to create a dynamic world that changed and developed, and that the player could influence with his or her own actions. We created a political faction system and set up the rules by which it operated, as well as the effects these changes would have in the game world. Then we moved to the individual people and designed their AI characters more similarly to shoot 'em ups – only with additional options and rules. In shoot 'em ups, you can assume that every opponent has a ferocity of 100%. In RPGs you can't.'



RPGs require character independence for realism

artificial intelligence

to get treats.' The game will also include mood swings for the dogs, which make them more or less likely to want to play certain games on certain days.

'There are waveforms in the programming that we poll to get moods... the dog can be happy one day, grumpy the next, and is affected, in part, by events around them.' While this is not a game in the traditional sense, the idea behind the program opens up all sorts of possibilities for new game-like titles. Imagine a version of *SimCity* where each citizen affected by poor work conditions is more likely to riot or commit crimes or has an urge to personally run for mayor, or even competes with others for contracts on public buildings.

So where does the future lie? In spite of terrific advances in processor speed, graphics and sound in the past few years, game AI seems, for the most part, locked in place. Bullfrog's Peter Molyneux explains part of the problem. 'It's an incredibly tricky area. If you look at all the developments in the computer game industry in the last three to five years, they've been mainly in the graphic area. We've got some amazing texture-mapping routines and some awesome Gouraud shading, they're extremely fast and that's great, but what are we going to fill those worlds with?

'We can now create cities that you can fly around, we can create worlds that you can fly over, we can create offices and houses that you can walk through. But if we're just going to have cardboard cut-out characters that you are choreographed around – in this world that gives you complete freedom of movement – they're essentially going to be boring.'

Molyneux does, however, offer a solution. 'So it's the advancement of artificial intelligence that's going to be the issue in the next three to five years. That's a huge problem, much more than vectors and 3D stuff. With those things, you've got a flagpole that you're going to head for and you can say, "OK, we want this resolution of graphics running at this frame rate," but with AI there's no flagpole. There's no ultimate objective to head for. You need to get people believing that they're walking through a real world, or suspend their disbelief. AI's most difficult challenge is making people believe these are real

characters like a kid believes in cartoon characters, and that is extremely hard to do.' To this end, many companies, including Bullfrog, are investing heavily in game AI research in order to deliver what may very well be the next great age of videogaming. 'The area that will take a lot more work, and is most interesting, is having good intelligent opponents and collaborators in a game,' says Dave Lebling. 'If you're playing a *BattleTech* type of game in which you've got a bunch of 'mechs going after somebody, it's all very good if you've got a bunch of friends who can play the 'mechs on your team and the other team. But what



AI is capable of creating new game genres that players have never experienced

would be even better is if you could play as the leader of the group and give orders, and have computer team mates carry them out in a reasonably intelligent way.'

Even as on-line services offer games that are faster and cheaper to play, there must come the realisation that there will always be times when players will be alone with their computers.

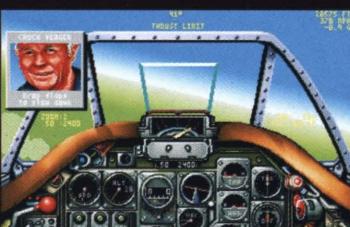
If no one has spent any time trying to create opponents that will give them a believable challenge, then all of the forward progress in creating more realistic fantasies will have been wasted. There is an entirely new 'species' of game waiting for computers to perform human-like functions that have been previously considered impossible. Imagine an RPG where all NPCs converse so realistically that you cannot tell them from real humans; space combat opponents who feel anger, sadness, and fear at the loss of a comrade; a sports game in which the players think and react like the human players they represent; games that can tailor themselves to be more entertaining just by monitoring your style of play. The future of gaming lies in creating worlds where the player is one of many intelligences, not just the greatest.



Auto pilots: flight sims

In flight simulations, developers create enemies who fight back against humans as if they were real people. This means developers spend a great deal of time learning how humans fly, how they fight, and what forces they can withstand and still be able to perform their basic manoeuvres. For example, if a computer plane is in a dogfight, and the quickest way for it to attack the player is by dropping into an inverted 9G turn, the AI needs to know that this movement will disable the pilot, even if the aircraft itself is capable of the motion.

Chris Tector, producer of Interactive Magic's *Star Rangers*, explains: 'We started by reading books on flight and tactics, since we're mostly doing a flight-oriented game. We tried to create some notation to figure out what the bad guys should do.' Once a language has been created, designers determine exactly how a given spacecraft would use its armament and speed in real combat.



Ex-test pilot, Chuck Yeager, assisted the design team with EA's flight sim

Often, in the case of more realistic flight sims, military pilots are called in to explain to programmers the flight tactics used in combat. In *Chuck Yeager's Air Combat* by EA, the celebrated air warrior actually detailed entire missions that he had flown, and the design team had the enemies fly and react just as those craft did. By using set patterns of AI like this, the team was able to create flight experiences that would mirror Yeager's own if the player reacted just like the pilot, but would offer a realistic fight even if the player tried to do something different.

Combat simulators receive more research attention than any other form of game AI, due mostly to huge projects run by governmental agencies in an attempt to create more realistic pilot training situations.

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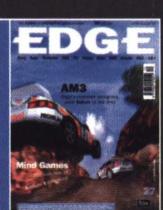
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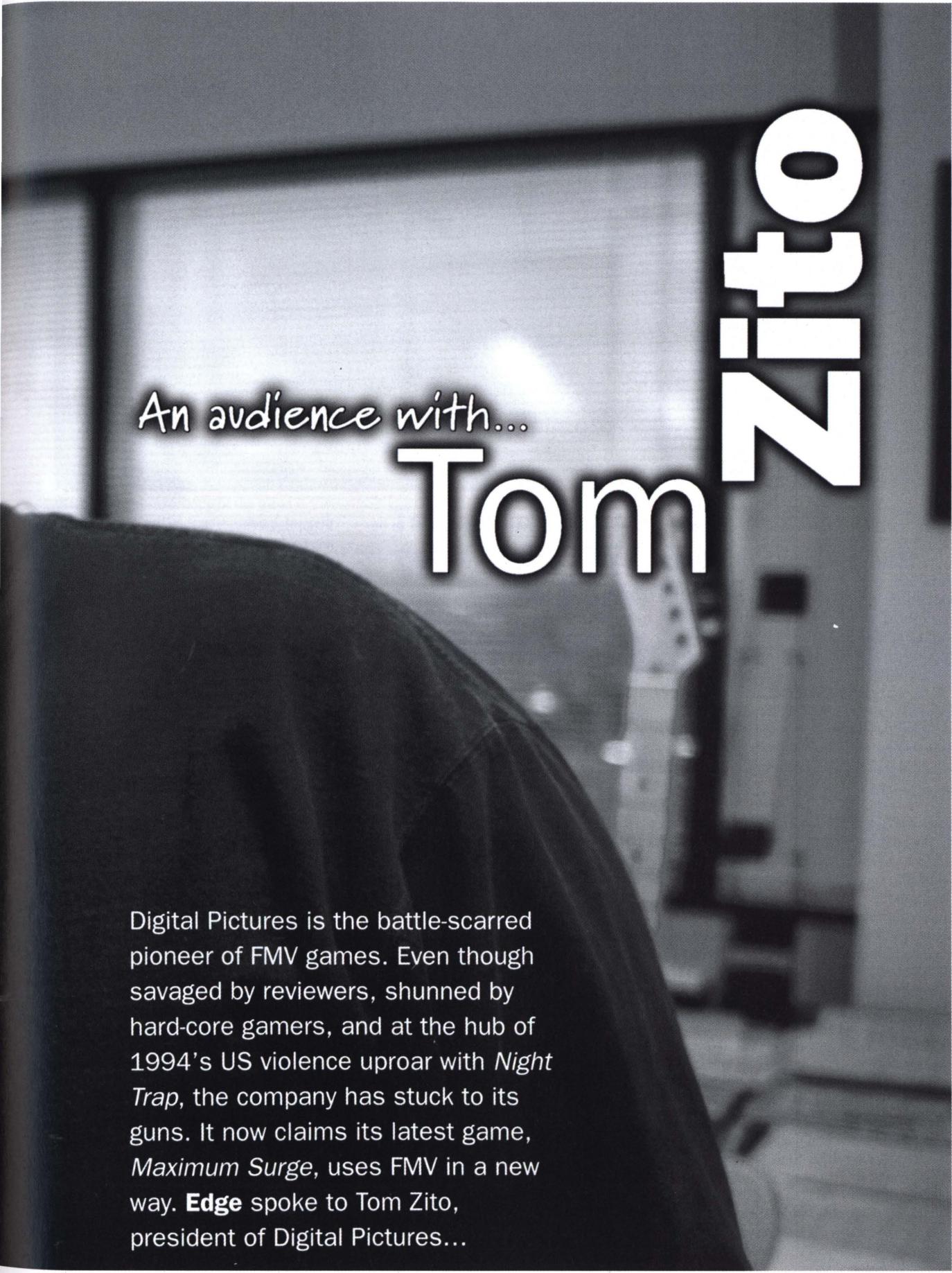
interview

EDGE magazine December 1995



There are many reasons why Digital Pictures won't rule over the gaming world any time soon, not only because its founder "could never really care enough about Princess Zelda to spend 40 hours battling through the forest in order to rescue her". Choose your own favourites to go with that particular cracker.





An audience with...

Tom Zito

Digital Pictures is the battle-scarred pioneer of FMV games. Even though savaged by reviewers, shunned by hard-core gamers, and at the hub of 1994's US violence uproar with *Night Trap*, the company has stuck to its guns. It now claims its latest game, *Maximum Surge*, uses FMV in a new way. **Edge** spoke to Tom Zito, president of Digital Pictures...

The industry buzz word, 'interactive movie' is a standard to which most developers strive but few achieve. But as the majority of game houses start on their first FMV (full-motion video) projects, Digital Pictures has been working with video footage for five years.

Night Trap, the company's most notorious game to date, was created back in 1987. Digital Pictures have more than 20 FMV titles incorporating real video footage into interactive entertainment. *Sewer Shark*, *Corpse Killer*, and *Slam City* have blazed a trail that others are now just beginning to follow.

Unfortunately the actual games have never been very good. The typical reaction to FMV-based games is one of beautiful visuals with severely handicapped gameplay. Are these flaws due to limitations in technology, bad design, or an unavoidable consequence of 'interactive video' being a contradiction in terms?

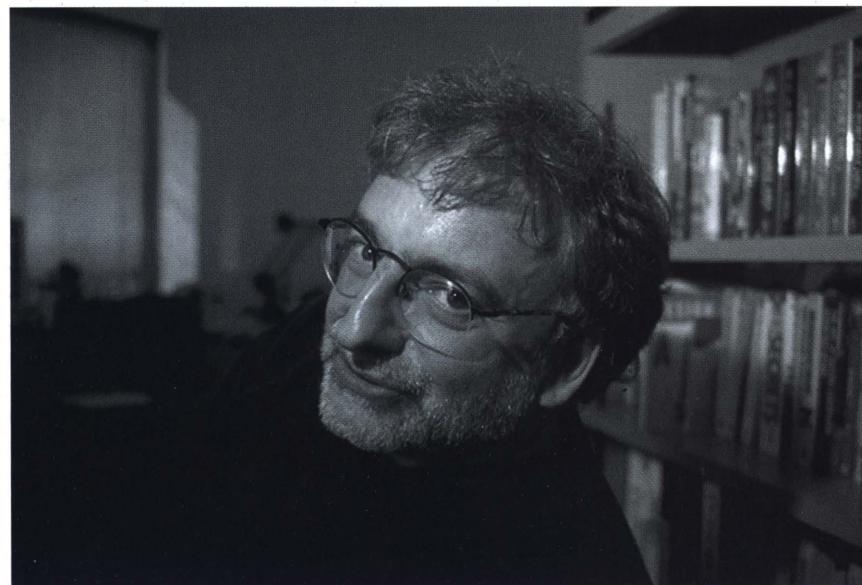
These criticisms could now be redundant, because Digital Pictures has evolved the FMV genre. *Maximum Surge*, its latest game, blends video-sourced visuals with computer graphics to create a new style of game. It is to *Night Trap* what human beings are to chimpanzees.

Edge queried Tom Zito, president of Digital Pictures about FMV's pros and cons, and whether the FMV games of the bad old days are just some terrible form of videogame adolescence that we've almost grown out of.

Edge FMV has a terrible reputation, right?
TZ Right. But we've done some really interesting focus groups with gamers. Tell somebody you've got a really great FMV videogame to play and they say 'So what? I don't want to see it. Full-motion video stinks.' But if you instead simply show them a good product like *Supreme Warrior* [one of Digital Pictures' earlier games], interestingly enough they say, 'This is an interesting video game,' and, 'The graphics are awesome!' That's what they talk about – the graphics. 'It's better than *Doom*, because they're real people.'

Edge Is the real-life look the single biggest advantage of using FMV?

TZ We think of the camera as a sourcing device for in-game graphics. Could graphics be done in other ways? Sure. But probably not as effectively. If you look at *Maximum Surge*, does the experience of playing that game change because you find yourself in a battle with Yasmine Bleeth [the game's lead character, and star of TV's *Baywatch*]?



think it does. Of course, it still needs to be a good game.

If you look at *Quarterback Attack* [Digital Pictures' forthcoming football game], there's no way, in my opinion, that even the best computer graphics or the best polygon-rendering capabilities could do the same job of really simulating what it feels like to be down on a pitch with eleven 300lb men who want to kill you.

Edge But FMV games are notorious for the lack of player control. And a football game with no control would be dreadful. **TZ** There's an FMV football game that came out from one of our competitors called *Quarterback Challenge*. You were the coach, you decided what play to run, and then just sat back and watched it. Now that's a crappy FMV game.

We ask ourselves what kind of experience we deliver to a player that he couldn't have without film. The answer is *Quarterback Attack*.

Edge And you believe that video offers a sense of realism that computer graphics never can?

TZ We put people in worlds they would otherwise never experience. In *Supreme Warrior* you get a chance to go up against 12 of the best real martial artists in the world. To me, that's a much more interesting place to be than watching myself represented on a flat screen, flailing away at a cartoon.

Sure, it's great to watch the characters in *Virtua Fighter 2*, but you'll never experience the fear for your life that you find in *Supreme Warrior* when one of the bodyguards is about to pummel your face.

Edge But even playing an FMV game, you know it's not real. You still have to muster a significant suspension of disbelief to get over the fact that you're just looking at a TV set in the comfort of your own home.

If you can make the jump in imagination big enough to get over that, surely you can get into the characters in *Virtua Fighter 2*?

TZ When you're watching a cartoon or animated character, there are certain emotions and unavoidable human reactions that you leave at home. Sure, you have all



the pride of watching your character pummel an enemy into the ground, but there are certain human, gut-reactions that can only be triggered by seeing another human. Real people produce real reactions. And that's what we're after.

For example, I personally, could never really care enough about Princess Zelda to spend 40 hours battling through the forest in order to rescue her.

Edge Don't graphics essentially become invisible once you've 'got into' a game? Aren't they merely a visual metaphor for the battle of reflexes and strategy between

the player and the guy who created the game's AI (artificial intelligence)?

TZ I believe that film is always new and always stunning. There are visuals you can deliver using film that you could never do in a computer graphics game. You can show things that you will be shocked and surprised by. That's what I love about film, the director gives you an experience.

Edge But when you're playing a game you don't really notice the resolution of the enemy. You simply realise that there's an enemy there and you have to kill it.

TZ So what do you think makes *Dark Forces* a better game than *Doom*?

Edge It's not, but from a conceptual point of view, the fact that the game takes place in the *Star Wars* universe, familiar to us all.

TZ Absolutely. And in my opinion, the best thing about *Dark Forces* is all the little things they do to cheat you into believing that you are inside a *Star Wars* movie. That's where the emotional resonance of the game comes from. It's the simplest things they do which I think are brilliantly effective, like having a guy who sounds just like a Storm Trooper in *Star Wars* saying, 'You. Leave this area immediately!' The credits scroll like on the movies, the music's there – they continually remind you that you are in the *Star Wars* universe. And this adds a lot to the game.

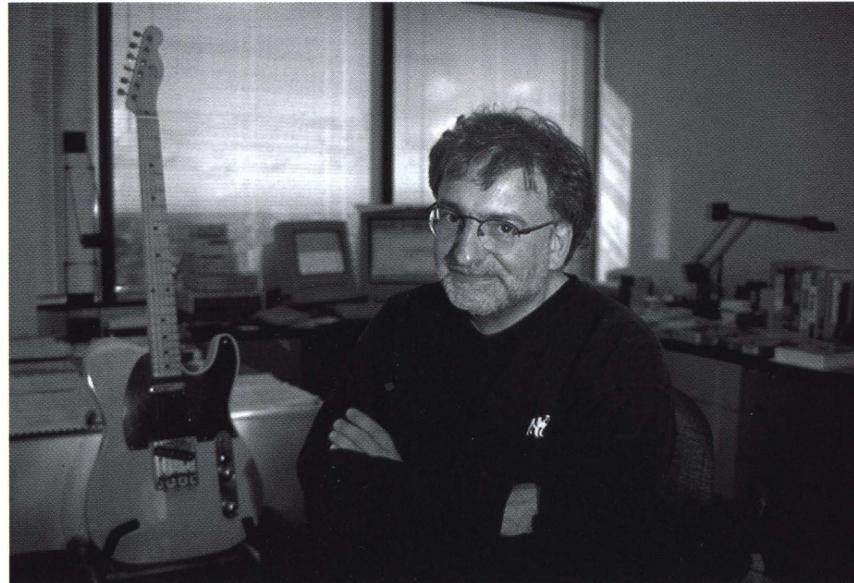
At Digital Pictures we're doing a similar thing with our games – offering believable worlds. Because we use video, we're better at it than even LucasArts.



Edge So how do you explain the fact that games like *Pong*, *PacMan*, and *Asteroids* – games with the most basic of graphics – were such big hits?

TZ How many people this year went out and bought Activision's Atari 6-pack of these old games for the PC? Not many. Sure, the games are terrific: *Pitfall*, *Missile Command*, *River Raid* – but no one wants to play them now. Back then, when they were hits, they were the only games around.

Edge Books don't have fancy graphics, yet they are usually a lot more immersive and compelling than movies of a book...



Tell somebody you've got a really great FMV videogame to play and they say 'So what?'

TZ Not always. One of my favourite books was the *French Lieutenant's Woman*. John Fowles fought for years against anyone making a movie of it, but eventually one was made by Pinter. I think the movie communicated better what Fowles was trying to accomplish in the book. I admit that this is the exception. Other examples would be *Apocalypse Now* or *Jaws*.

Edge One of the biggest problems with FMV is showing and moving video about the screen takes up a lot of in-game time. If you're going to use video, you have to sacrifice some measure of playability because the player is simply turning on or off different video clips.

TZ When developing *Maximum Surge*, we sat down with the brief of giving people a good game to play. Then we backed up and asked, 'Where can we steal interactivity to immerse people in a world so real they enjoy being in here more than in *Doom*?'

Edge So how does 'stealing interactivity' translate to gameplay?

TZ In *Maximum Surge*, there is a sequence in which you have to charge down corridors, shooting bad guys, hiding behind barriers, and dodging bullets. We have 'stolen interactivity' to the extent that you're restricted to movements of four foot increments. In *Doom*, however, you could take steps of just a few millimetres.

How much of a sacrifice have we taken in the game design to do that? I think

we know that pragmatically, it's not a whole lot.

Edge 'Stealing Interactivity' is a crucial concept here. The easiest and most accepted way of doing so is a technique often used in graphic adventures. For example, your character is in a room and you want him to walk over to a window and open it. In this instance, it's perfectly OK for the player to just click on the window and have the character walk over to the window by himself. In this instance you can 'steal interactivity' and cut to some impressive graphics.

But *Maximum Surge* isn't a graphic adventure, it's an action game. Surely, in an action game, stealing interactivity is perilously dangerous?

TZ We're sacrificing something in order to give you something else. So what if the next camera step forward is four feet? Instead of giving you a camera step of two feet, I'm giving you another target to kill.

And you can kill that somebody with a degree of payoff. You see a real person. Which you never can see even in *Doom*.

Edge But to create a true feeling of immersion into the game the world's look is only half the battle – how it feels to move around is of equal importance.

If a player tries to take a two-foot step, or tries to attack the bad guys from behind, and realises that he can't – because you have 'stolen' that level of interactivity –

then the illusion of being in a real world is ruined. The feeling of immersion is shattered instantaneously.

TZ If this game begged in your mind the question, 'What does the enemy look like from behind?' and you could never see, then sure, it would suck. But we've designed it so you have new enemies to deal with before you think of that.

Edge When you talk of limiting the degree of interaction to what is only 'useful and interesting,' that's really a reality forced by the power limitations of the machine. You couldn't

provide as much interaction as a game like *Doom* in an FMV-based game, so to say that you 'choose' not to is perhaps a little bold.

TZ It's a combination of choice and technical limitation. But as it is right now, I think there is more gameplay in *Maximum Surge* than in *Doom*.

Edge By providing both graphics and playability, there has to be some sort of trade off. You can have a great-looking game in which every image looks like a photo, or a very simple game over which the player has ultimate playability. A computer can only do so much work.

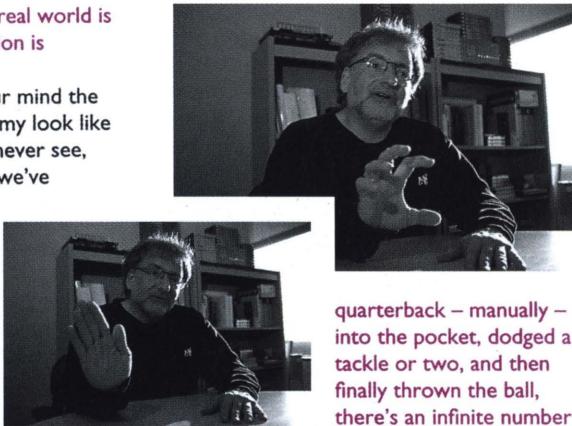
In providing both great graphics and smooth play, there is some sort of trade off between the two. How do you decide which to choose over the other?

TZ You base your choice of 'how much graphics, how much interaction' on game design choice and experience. For example, in *Quarterback Attack*, we offer an experience that cannot be matched by any other product on the market.

Sure, in our game you can't do something like turning around and running the other way down the field like you could in, say, *Madden*. You are confined to some preset options. But who would want to run the wrong way down the field? No true quarterback would do that. I think the trade off is a conceptual, hypothetical issue as opposed to any enhancement to the experience of playing the game.

Instead, what we offer is the feeling that you're actually down on a field with 350lb guys, trying to throw a pass with a sense of realism. The only basic difference between our FMV-based game and one like *Madden* is that in the other games you can do things that you would never do in a real game – and you never fear for your life.

Edge But in a CG [computer graphics] world like *Madden*, by the time you've picked your formation, picked your play, picked your receiver, manoeuvred your



quarterback – manually – into the pocket, dodged a tackle or two, and then finally thrown the ball, there's an infinite number of variations. There's a

real chance that every play is unique and that no one has seen exactly the same play twice. Isn't this, therefore, is more 'real'.

TZ If all those plays on *Madden* look different, then we have very opposing definitions of 'different.' To me, *Madden* looks like a TV screen full of little green ants. So I say, 'Look, that ant is a millimetre over to the right this time.' Big deal.

Edge Instead of simply having a game screen full of video, *Maximum Surge* looks

Trap a good game? I don't know. I thought so, but a lot of people didn't.

We can also build on things we've done in the past. For example, in *Ground Zero Texas* we learned how to blow the living bejesus out of an android. We can now create a game where you can blow the living bejesus out of many androids in a less restrictive way than before.

Edge Do you acknowledge that you're racing against technology? Won't the processing power of future home consoles eventually produce rendered, on-the-fly visuals that equal the resolution of video-sourced or FMV graphics?

TZ Sure it will. But the rendering technology to make an on-the-fly computer graphics world with graphics anywhere near as realistic as video footage is probably ten years away from the home. For a rendered image at a sensible price for the home, that gives you the kind of nuance and subtlety provided by molecules in photographic films, is way off.

Edge So will you stay attached to video?

TZ Yes. What we try to do with video is to create an environment where you get caught up in what you're doing, an

There are visuals you can deliver using film that you could never do in a computer graphics game

more like a traditional videogame, but with video replacing computer graphics.

TZ The look is very distinctive. We've taken all the targets from the game and sourced them with real people – real video. So you have real Hollywood costumes with guys in alien suits – unlike anything an artist or renderer will ever produce.

Maximum Surge is really the first game in which we used the camera as a tool rather than a recording device. Just as if you were to create *Doom* you'd go to an SGI workstation and create all the sections as computer graphics, in *Maximum Surge* we have taken a video camera and done the same thing. We then assemble an image that looks real but, in fact, isn't.

Edge So why the change of direction from 'traditional' FMV-based games?

TZ Partially because the technology now allows us to do this. We couldn't do it, for example, on the Sega CD, the platform on which we started.

We've also learned how to make better and better games – and making good games has always been the goal. Was *Night*

environment in which you feel like what you're doing makes a difference.

For me, it's a lot easier to feel like I'm making a difference if a real person is actually talking to me in a context that makes sense given what I've just done. As opposed to... you know, I couldn't give a shit about rescuing princess toad stool. That doesn't have any meaning to me.

Edge So Digital Pictures' games have evolved. From *Night Trap* to *Maximum Surge*, gradually you have managed to do more and more with your FMV raw material. Are the days of the 'old FMV' games now over?

TZ I've got to say I hope so, yes.



EDGE

NINTENDO | SONY | MICROSOFT | PC | PORTABLE | COIN-OP | SET-UP | ONLINE

THE YEAR OF THE SNAKE

INSIDE KOJIMA PRODUCTIONS AS THE NEW METAL GEAR SOLIDIFIES

FEATURES CAN SEGA RALLY ITS FORTUNES? **SUPER MARIO SUNSHINE'S HIDDEN HEART** IS DOWNLOAD CONTENT A RIP-OFF?
PREVIEWED HELLGATE: LONDON **BLACKSITE** **VIRTUA FIGHTER 5** **GOD OF WAR 2** **DEF JAM: ICON** **SIM CITY DS** **BURNOUT DOMINATOR**
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IG Online

In the first part of a new regular section, Edge connects to the Internet in search of the best online videogames journalism

It is the most important thing to happen to computer technology, maybe even society, for the last five years. But unless you know where to look, the Internet can seem like an endless parade of dodgy chat sites and sad anorak sci-fi pages. In fact, there is a wealth of videogame information in cyberspace for anybody who has the time to hunt it out. From this month on, **Edge** will endeavour to take the surf out of the net and present a discerning guide to the

Site: Intelligent Gamer Online

Address: <http://igonline.escape.com/igons.html>

Format: Online videogames magazine

Origin: Amherst, New York, US



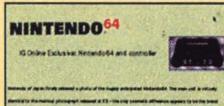
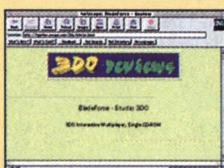
IG Online presents well-presented, Netscape-friendly pages, with easy-to-find links to other sections

HEADLINES

IGonline has the latest pictures of [Toshinden 2](#). Check them out, you may be amazed at what you see Added 10/26/95

IG Exclusive! [Nintendo Ultra 64](#) Pictures are here as well as now pictures of [Saturn Virtua Fighter 2](#). Check them out in this month's

[Edit local](#), IG Online arrives on AOL and the Microsoft Network. Find out what we are doing for



Intelligent Gamer Online provides in-depth reviews of the latest games (top), news stories on forthcoming products (middle) and rumour and speculation about new games (above)

videogame infobahn, featuring different sites in each issue, weighing up their pros & cons and, most importantly, telling you where to find them. This month unrivalled American gaming site IG Online comes under scrutiny.

Intelligent Gamer Online is a videogame magazine – like **Edge** – aimed at the higher end of the consumer market. Jer Horwitz, the senior editor, told **Edge**, 'Our audience is a group of informed consumers who have money to spend, rather than the younger audience which wants advice on getting past the first level in *Batman Forever*.' This is a site packed with information, reviews and analysis of a very high standard.

The magazine is split into a number of sections. Each is regularly updated to provide the latest information and each page has a quick access menu that allows steps to be retraced, or other pages of the mag to be accessed quickly.

Perhaps the most interesting areas of IG are its news sections. There are several features and in-depth articles focusing on specific companies and games. There is also a large preview section and a number of hardware reports. Most impressive is the speed at which IG keeps its readers informed, and how it manages to (exhaustively) cover the most exciting developments.

There's also a link to Scott McCall's Ultra 64 page, packed with facts about the console. Articles include a profile of the companies making up the so-called 'Dream Team' – including (where available) the web sites for each, detailed U64 specs and Nintendo PR information. This is an incredibly deep guide to the Ultra 64 and perhaps the most extensive and reliable available.

IG's pronto news section is full of brief reports, of which half are fact and half (more interestingly) are rumour and speculation. This month sees news concerning the M2, a Jamma report and early conjecture regarding VF3.

The review section covers at least 15 game reviews for each main platform with attention also given to less 'trendy' formats such as the Jaguar and Virtual Boy as well as old-timers like the SNES. Other features include a regular conference slot where IG users question prominent figures in the computer and videogames industry.

Despite its remit as a haven for the terminally game-obsessed, IG Online is a highly professional, well presented and interesting site. The content is aimed squarely at gamers with a hunger for the latest in videogames news and it doesn't let them down.

Features...

Pronto News

A superbly informative section of news detailing the Saturn's acquisition of former PlayStation exclusives, the new Ultra 64 controller and speculation over Sega's involvement with M2

Reviews

Arcade, home console and PC games reviewed

Mail

Lively email/letters page. Lengthy, in-depth replies.

IG Interactive

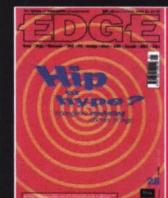
Online conferences with industry pundits. Transcripts of previous conferences are available to look at on the site

Archive

Features and reviews from previous issues

Links

Direct access to Scott McCall's U64 Page: <http://igonline.escape.com/capscott/nu64-cap.htm>



Issue 28 sees the introduction of **Edge's** Netview section, a 'guide to the videogame infobahn' aimed at taking 'the surf out of the net'. First up for scrutiny is Intelligent Gamer, which seems certain to go on to big things, even if its 'well-presented, Netscape-friendly pages' are home to some awesome 3D fonts.



Another new section, and another showcase of the work coming out of LA-based codeshop Scavenger. The company is keen to show off its technical skills, and suggests that it would like to work with Shigeru Miyamoto. Perhaps the team could tell him how the graphics in *Yoshi's Island* could be made less 'unattractive'.

As more developers adopt standard techniques to realise their gaming concepts, Edge singles out a team who has been raising the coding ceiling for some time. Recently offered an alleged \$8m for their PC debut and three related projects, Scavenger talks tech

Into the Shadows

Format: PC CD-ROM

Publisher: Scavenger

Developer: In-house

Now 32bit technology has slipped into the mainstream and software developers have had time to assess the abilities of each platform, it is hard to get excited over million colour palettes and texture-mapped polygons. Thankfully, several innovative companies exist who are already looking to the future and pushing hardware to the limits.

Hence the introduction of techview, a showcase for designers making true

detailed look at its innovative and somewhat crafty approach to PC graphics...

Into the Shadows is a D&D-style game with puzzles and maze-like locations, but with the emphasis placed firmly on action, and more specifically, fighting. It's a game that exhibits truly extraordinary graphical quality. The scenery is incredibly detailed and atmospheric with slimy dungeon walls and flaming torches that are crisp and beautifully drawn. Most impressive is the game's cast of characters: elves, wizards, etc who look gorgeous and exhibit an unparalleled fluidity of motion – not an easy task with the antiquated PC hardware.

The techniques involved are no more glamourous than the creative use of mathematics. Where other developers struggle to conform to the



Scavenger are programming entrepreneurs attempting to trick every ounce of graphical ability out of the PC

breakthroughs in realtime graphics, game design and sound. Over the coming months, Edge will be cherry-picking the best examples of design and programming talent and exhibiting the standards for other developers to reach. First up is Scavenger, the LA-based development company responsible for 16bit Sega titles *Sub-Terrania* and *Red Zone*. The company's policy for never importing graphics technologies, instead developing their own, has already placed it in the Edge spotlight in the form of an extended prescreen feature (Edge 25). Now the company is in the limelight again. This time for a more



All of *Into the Shadows*' characters have been fully motion captured with the Polyhemus system, creating an unrivalled fluidity and realism



D&D setting

Scavenger have chosen to exhibit their beloved editor in a suitably eerie environment. Dungeons and Dragons games have been around since the 8bit days, but recently the genre has been dominated, if not hijacked completely, by Japanese RPGs in the *Zelda* style. To win players back to the *Dungeon Master* way of doing things, Small is seeking to create a believable scenario in which players can immerse themselves. In this respect, Scavenger is pushing the graphics engine as a means to accentuate the quality of the game, rather than make up for a lack of it: 'We're really trying to meet the interest group that enjoys this type of Dungeons and Dragons fantasy and we're trying to remain faithful to that group, and provide the most realistic environment in which to play.'

Into the Shadows features amazing animation (above). The game will be transferred to the Saturn and PlayStation

PC's primitive architecture and operate within its strict confines, Scavenger are programming entrepreneurs, attempting to trick every ounce of graphical ability out of the machine. As Daniel Small told **Edge**, 'Every machine can do something it's not supposed to, and we have the tricks to exploit this.' These graphical deceptions are used throughout *Into the Shadows* to fool both the player and, more intriguingly, the computer, into thinking incredibly complex things are happening on-screen, when in fact simpler things are taking place – they're just being aided by algorithmic tricks and short cuts.

Mikko Thatinen, one of the lead developers on the *Into the Shadows* project, was willing to give **Edge** a few glimpses into the workings of the Triton graphics engine. *ITS* first captures the imagination with its brilliant animation. The characters are incredibly detailed, intricately animated figures, yet they're utilising

an anorexic 100 to 350 polygons. Thatinen explains this paradox with a furtive admission, 'We utilise a doubling and transparency technique to give the appearance that we use more polygons.'

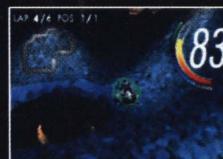
The shadows cast by the characters provide another graphically impressive element. It looks as if they are formed from real shading affected by light sources within the game and, indeed, the shadows are calculated in realtime. However, Thatinen points out there are limits to how much the PC can calculate, so alternative techniques are employed to make the effect appear real. The team have in essence used physics and complex algorithms to create 'elegant short cuts'.

At the heart of all this chicanery is a complex, state-of-the-art editor, which Small is extremely proud of. 'I've seen some editors that people show' he says with a hint of derision, 'but the tools we've developed to make the game are just as impressive as the work itself... it's very in-depth.'

Reassuringly, technological innovation is not the company's overriding ambition. Gameplay is just as important to Scavenger. As Daniel Small told **Edge**, 'The game that is all the rage at Scavenger at the moment is *Yoshi's Island*. We feel the graphics are unattractive, but the gameplay is so much fun. One day we would like to work with Mr Miyamoto. He is truly a wizard' For a look at Scavenger's amazing work on the Saturn, see pages 34 and 35.



Good texturing and motion capture ensure that the characters look detailed and move convincingly



Scorcher (top) and *Amok* (above) are evidence of Scavenger's dedication to ground-breaking graphics. Appearing on the Saturn, both games feature fully depth-cued, lightsourced, z-buffered scenery



With the continuing trend for coin-ops crossing over to the home consoles, **Edge** takes a look at the popular titles in the arcades, starting with some of the games featured at this year's Jamma show

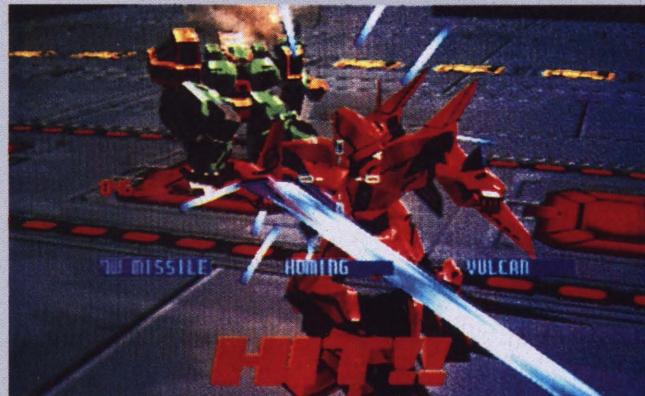
Virtual-On

Den-no-sen-ki

Developer: **Sega AM3**

UK release date: **TBA**

Origin: **Japan**



The trend for futuristic, mechanised battle games continues with the forthcoming release of AM3's model 2 title, *Virtual-On*. Following the premise set by Namco's *Cyber-Sled* and *Cyber Commando*, AM3, perhaps in an effort to maintain Sega-Namco rivalry, have taken the tank destruction game blueprints and developed them into a game with a few intrinsic differences.

Perhaps the most obvious difference between the Sega and Namco titles is that AM3 have chosen to employ robots rather than armoured vehicles. From an aesthetic standpoint, this seems to have been a good decision. The robots are visually stunning and incredibly detailed, not surprising as they have been designed by the team who worked on the last OAV (original animation video) of *Gundam*, the seminal robot war series. Not only do the robots look impressive in stills, they also work well in the game, due to some intricate and careful animation.

As well as silky smooth animation and detailed



design, each robot boasts a huge range of weapons including lasers, rockets and machine guns. The designers of *Virtual-On* have also introduced an element of realism into battle with the employment of believable trajectory. When a rocket is fired its flight path is curved, as in real life.

AM3 have gone for an interactive approach in *Virtual-On*. The camera shoots in on any action, pans around, and jump cuts to give the impression of speed and accentuate excitement. The camera can also focus explicitly on explosions and, when a robot is destroyed, it zooms in on the blast from several angles: a rather slick and cinematic effect.

Incredibly, considering the high level of detail in the animation, robot design and backgrounds, the version **Edge** played at Jamma was running at a smooth 60fps. This combination of detail, speed and fluid animation will surely mean another success for AM3.



Virtual-On promises to take the arena-style beat 'em up a step further with robots wielding heavy duty artillery. The incredible 60fps visuals should keep AM3 devotees well-pleased



The strangely titled **19XX** bears more than a passing resemblance to its 8bit predecessor, **1941**. Expect more colourful graphics, though, and some much larger sprites

19XX

Developer: Capcom

UK release date: TBA

Origin: Japan

Presented at both Jamma and the PlayStation Expo, **19XX** is another sequel to Capcom's highly successful mid-eighties' coin-op, **1941**, and another title to run on Capcom's CPS2 system. Instead of going for a complete re-styling of the ageing game premise, designers have chosen to take the 8bit original and simply update it, keeping the basic game more or less intact. The player will still have a choice of three planes – a P38, a Mosquito and a Japanese hybrid craft (the same planes available in the original, incidentally) – but now the sprites are bigger, especially on the end of level bosses. The game is also much more colourful than its



Capcom's **19XX** once again confirms the popularity of the vertically-scrolling shoot 'em up in the arcades

predecessor, but that is more or less where the distinction ends.

Is this a little cheeky? Probably, but all they are doing is following the simple premise that if it ain't broke don't fix it. **1941** is still popular in the Japanese arcades, so updating it in this way is a cheap and easy way of extending its life expectancy. **E**

Crypt Killers

Developer: Konami

UK release date: TBA

Origin: Japan

Arcade charts

Top ten PCBs weeks in charts

1	Tekken 2 (Namco)	12
2	Mega Man (Capcom)	2
3	Quiz (Nanamikou)	26
4	Viper Phase 2 (Selbu)	19
5	Puzzle Bobble (Taito)	7
6	Street Fighter Zero (Capcom)	19
7	Space Invader 2 (Taito)	7
8	Stale Winner (SNK)	5
9	Pang 3 (Midway)	22
10	Striker 1945 (Psikyo)	15

Top five dedicated arcade games

1	Rave Racer (Namco)	5
2	Virtua Striker (Sega)	11
3	Daytona USA (Sega)	59
4	Virtua Cop (Sega)	44
5	Cyber Cycle (Namco)	18

Another popular genre at the moment, alongside the battle arena beat 'em up, is the *Operation Wolf*-style blaster. With *Virtua Cop 1* and *2*, and *Time Crisis* due for imminent release, Konami have jumped on the bandwagon with *Crypt Killers*.

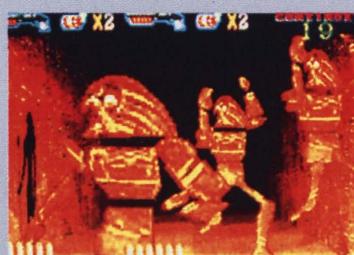
Perhaps the most notable aspect of this disappointing game is its large screen which allows three players to join in at once. Each player holds a shotgun which takes eight cartridges and can be re-loaded using a pump action. The player can also choose the order in which to compete the stages,



so the game is less linear than the *V-Cop* series. There are also areas where one or two disparate routes can be selected (as in *Rail Chase 2*), again, making the game much less forcibly structured than its rivals.

However, the title is severely let down by its graphics. Whereas most of the backgrounds make use of polygons, many enemies are bitmapped, which looks rather primitive when placed against the visual excesses of *Virtua Cop*. This problem is not helped by the game's drab colour palette.

Perhaps as a consequence of these visual let-downs, the game has had a luke-warm reception in Japan. Konami may learn then, that producing a game to fit an in-vogue genre is not necessarily a recipe for success. **E**

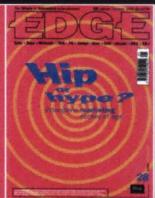


Egyptian style characters (above) give the game an Indiana Jones look

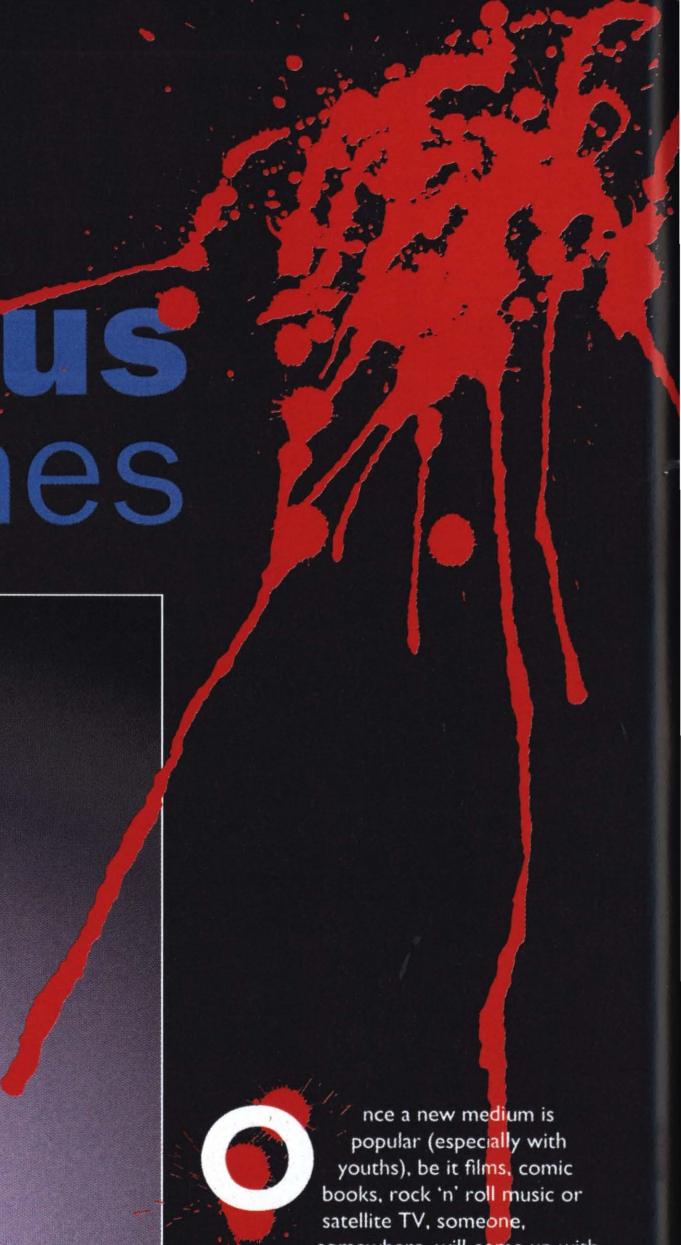
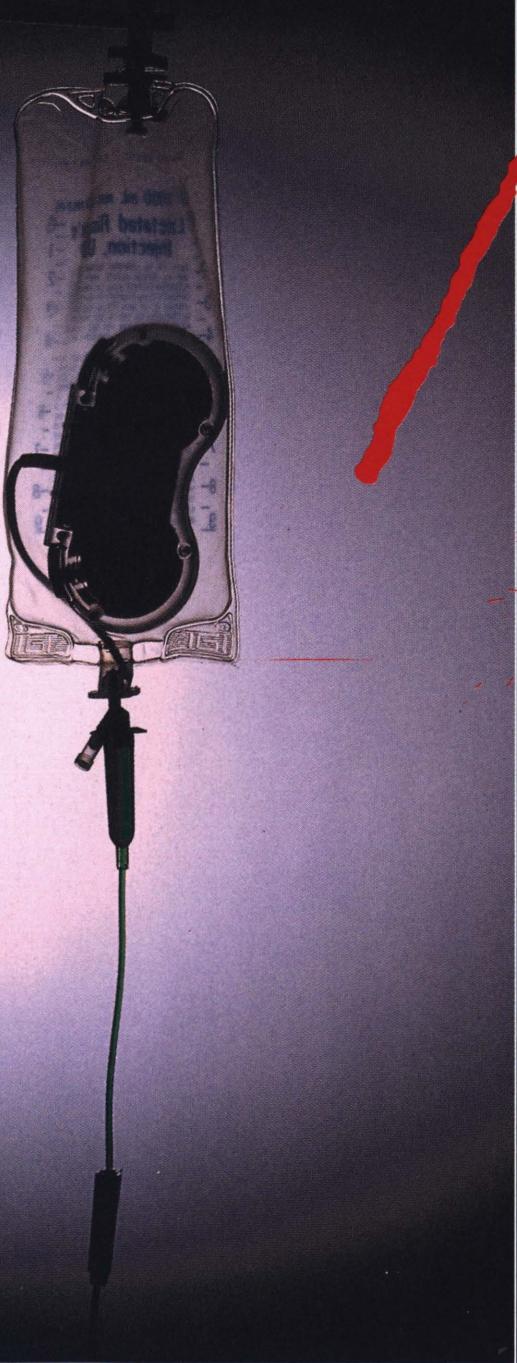
Crypt Killers tries to repeat the successful *Op Wolf* and *V-Cop* formula, but sadly misses the target

Videogame violence

Dangerous games



"As a trend, I've found that introverted people have increased their social circles through playing videogames," says a respected medical researcher in Edge's examination of the still-hot potato that is the dangers-of-videogaming debate. Imagine how much bigger those social circles might become with online gaming..."



Once a new medium is popular (especially with youths), be it films, comic books, rock 'n' roll music or satellite TV, someone, somewhere, will come up with a reason to hold hearings, make threats, attempt to implement a ratings system, and (if he's a politician) jump several points in the opinion polls. So it is with video games. In the last few years pressure groups, politicians, and the press have accused the interactive industry of everything from corrupting today's youth with images of sex and violence to causing outbreaks of epileptic seizures and the modern malaise RSI (Repetitive Strain Injury).

Of course, anyone who remembers such scaremongering eighties tomes as 'Invasion of the Space Invaders' knows such rhetoric is old-hat, aimed at games that might be sensational in the short term but with the benefit of hindsight look innocuous and quaint. Or is it really so simple? Beyond the paranoid hype, beyond the fears of concerned parents, are there genuine issues involved?

Epilepsy

Claims that videogames can trigger epileptic fits first surfaced in the early '80s.

but it wasn't until 1993, when the Sun reported a boy had choked to death on his own vomit following an attack precipitated by a Nintendo game, that the panic began. A flurry of similar incidents, none as serious, were quickly picked up by the international media. Before long both Sega and Nintendo games had epilepsy warnings in game manuals, though some would argue the symptoms listed (loss of awareness, dizziness) are as indicative of a moderately involved gaming experience as of an oncoming seizure. Today, epilepsy warnings appear in game manuals on all computer systems.

Since the dawn of videogaming, there have been 50 cases of videogame-related seizures (VGRS) reported in medical literature. The actual number of incidents is probably substantially higher. A comprehensive study of the problem, published in 1994 in US journal *Pediatrics*, concluded that playing videogames did not cause seizures in people not already predisposed to an epileptic condition. About half of the affected individuals had abnormal Electro Encephalo Graph (EEG) readings when lights were flashed in their eyes (about 5% of the general epileptic population also display abnormal EEGs when exposed to flashing lights).

Later in 1994, a study published in *The Lancet* found similar results and noted that the flicker pattern of a TV most likely to cause seizures became more noticeable nearer the screen. So, if someone has seizures because of a sensitivity to light, sitting near the TV is not a good idea. Flickering sprites, caused by an overloaded sprite engine, can also increase the likelihood of a VGRS in those susceptible. Also noted was that seizures in people with extreme photosensitivity could be triggered by exposure to regular TV images and striped patterns like venetian blinds.

Of the millions of children and adults who have played videogames, only an extremely small percentage (.05%) will ever experience any problems of an epileptic nature. And only a few who experience problems will have the most adverse reaction – a full 'grand mal' seizure. Staying well back from the screen (about 10 feet) can decrease the chances of a problem, and in people with an already noted condition, purchasing a special 100 Hz TV, or wearing sunglasses while playing, can further decrease any risk.

Repetitive Strain Injuries

Repetitive Strain Injuries, or RSI, are a condition resulting from (as the name

implies) the cumulative effect of repeated strain on one group of muscles and ligaments. Almost any activity that puts strain on or uses the wrist, from squash to bowling, sewing, driving, typing, and of course, playing videogames, can eventually build up the muscles and ligaments in the wrist enough to cause Carpal Tunnel Syndrome (CTS), a disabling condition resulting from overuse of the muscles in the hand. As these muscles thicken pressure is placed on the nerve running through the

The Sun reported a boy had choked to death on his own vomit and the panic began

wrist, causing immense pain and even partial paralysis.

The most frequent sufferers are people who put in long hours typing at a computer keyboard every day, for months at a time. The main factors of a CTS flare-up seem to be determined by gender and repetition of the activity. Women, particularly pregnant women, and those



Mortal Kombat 3 (left), *Doom* (middle) and *Primal Rage* (right) portray a fantasy world where losers die in a pool of their own still-warm blood and winners are almost immortal. Healthy?

from ages 30 to 60, have a higher risk than men, because hormonal changes can exacerbate a slight condition. CTS, like other RSIs, depends on frequent, intense activity. Professional sign language interpreters, for example, are another group who suffer.

Although no scientific studies have been done that specifically relate to videogames and RSI, there's no reason to think that videogames, which do involve use of the hands extensively, are exempt. Preventing videogame-induced RSI is as simple as taking frequent breaks from playing and not overdoing it.

The symptoms of RSI are a numbness or weakness in the hands, tingling, pain in the joints, a weakening grip and impaired finger movements. RSIs are a risk (albeit a

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small one, for those who play games for less than 40 hours a week or so) but a few simple steps can lessen the danger. Take breaks, about five to ten minutes every hour; play videogames in moderation; adults always supervising children; and pay attention to body signals, that is, in the event of pain, stop playing.

Other symptoms

There are a litany of other complaints attributed to videogames, for which there is little scientific data, but a wealth of anecdotal evidence. Foremost are complaints of eye strain from playing both arcade and home videogames. Informal testing at the **Edge** office revealed blink rates per minute dropped dramatically when playing games (and to a lesser extent when using a computer). In one extreme case, blink rates dropped from 30 per minute when doing something manual, like



Gory videogames are not a modern fascination. Early decapitations were at the cutting edge of C64 games (*Wolfman*, left, cert 18). Nowadays, voluntary self-censorship is placed on all titles

packing a box, to two per minute while playing a 32bit racing game. Dry eyes are particularly a problem for contact lens wearers. Informal surveys conducted at arcades indicate the problem is present there as well.

As long as videogames remain exciting, there isn't much hope for a cure to this potentially painful problem. Thanks to evolution, the human eye tends not to blink when viewing motion – a smart strategy for survival on the savanna, or alternatively in *Super Bomberman II*. Our solution: cut scenes and pre-rendered intros are for blinking (there had to be a reason for them someplace). Be aware, and blink whenever the action ceases (not a problem for CD-i owners). In the end, eye strain is a polite way of the body telling its owner to take a break.

Another dilemma confronted by many videogamers is motion sickness. Just as some people get sick on roller-coasters, others can't handle the motion of *Doom* or *Descent*. Problems



occur when the eyes perceive motion, but the inner ear doesn't. If you get sick when playing *Doom*, there's really only one solution: stop. Like many of the problems associated with videogaming, this is something of a nonissue. Few people tried to ban IMAX movies because they make some people ill.

Not strictly related to RSIs, which are a more serious problem, incurring a sore thumb is often the consequence from a marathon playing session with a joypad. Solution: calm down – the joypad will react with a little push as well as a big one.

A stiff neck or sore back muscles, caused from sitting in one position while playing are also common, though minor. Again, the solution is simple. When taking the break to rest your eyes (see above), stretch, take a walk, and relax.

Most of the complaints about the physical problems associated with videogames can be overcome with a modicum of common sense. But what about the possible psychological effects?

Violence

The possible link between violent games and aggressive behaviour has been at the centre of the media's concern with the possible dangers of videogames, climaxing with the implementation of a 'voluntary' ratings system by the industry. This seemingly knee-jerk move of implementing a ratings system without any real debate served to get critics off the back of the industry without too much trouble.

However, though the issue isn't as controversial as it was, the rating system looked to many in the gaming business like an admission that there was something to the fear-mongerers' claims about the dangers of videogames, and that people were right to be concerned.

Yes, the majority of videogames have themes that involve violence or killing at some point but there is no proof that games cause any psychological harm at all. An American study by Dr. Jeanne Funk, published in the journal *Clinical Pediatrics*, found that among younger players (13 and 14 year olds), games involving human or fantasy violence accounted for 49% of preferred games, with sports games (which often have violent content) accounting for another 29%. Educational games accounted for a mere 2%.

Unsurprisingly, violent games are popular. As are violent movies and TV shows. Any type of news, whether on paper or TV, shows a tremendous amount



of violence. Despite some evidence that violent content on TV increases aggression in the interpersonal relationships of children, two studies conducted by Dr. Steven Silvern at Auburn University discount the theory that violent videogames result in violent patterns of behaviour. At the time one study was published, Silvern was quoted in US News & World Report as saying 'After playing [videogames], children don't necessarily feel angry; they feel aroused.'

To nonplayers, it may look as though children are sitting quietly in front of the set, playing a (possibly violent) game one minute, and bouncing off the walls the next. Has the game turned the child into a killing machine? Hardly. The key element is adrenaline. When playing a (good) game, a player's concentration is totally devoted to the action on screen. After beating a boss, or a friend in head-to-head play, there is an incredible amount of adrenaline built up, not unlike the effect of an exciting movie. An increase in physical activity immediately after playing is natural and to be expected.

Parents who worry about violent play would do well to remember how they played as children. It's unfair to point solely to videogames when children's play often involves make-believe violence.

More serious than whether children will be boisterous after playing a game is whether an endless stream of fatalities, death moves, and other various and sundry forms of killing will desensitise players to violence, making them as unconcerned about the death of a child in Bosnia as they are about one of the many deaths of Sub Zero's they might see in a day. There's no question that a violent movie like *Natural Born Killers* may be shocking and disgusting to see the first time, but repeated viewings will certainly remove any nausea at seeing the violence. It's tedious to see the same kills again and again, which is why the new *Mortal Kombat III* is more popular than *Street Fighter II*. Does a desensitisation to fictional violence carry over to real life? The answer hinges on several factors.

The desensitisation of people is well documented: a war veteran or a casualty nurse will be less shocked by the sight of a bloody car wreck than an 'ordinary' person, for example. But do humans log away 'real' and 'fictional' based experiences separately? It's not clear. All children learn real-world skills by playing and from fictional stories, but do videogames teach them the wrong lessons? Perhaps they simply play an unavoidable part in a child's

development. All children have a propensity to 'explore' violence, and if their desire to experience that isn't satisfied in front of a videogame, then it may manifest itself in another, less safe, environment.

There is also the point that, by virtue of videogaming's interactivity, playing violent games teaches 'cause and effect' in a way noninteractive TV or movies can never do. A regular player of *Mortal Kombat* may understand the implications of violence more than a nonplayer. The question arises, however, as to whether he or she will have learned that violence is a viable solution to everyday, real-world problems.

The graphic realism of a game is also relevant. In terms of realism videogames still pale in comparison to actual video images of violence that are seen regularly on TV. If there's a finger to be pointed when it comes to desensitisation to violence, we should look to movies and TV, not videogames. At least, not until we see fully interactive (not FMV) games like 'Virtua Torture', that are indistinguishable from TV quality images. Until then, games should be merely viewed as secondary concerns.

Are Videogames **addictive**?

Videogames are, of course, addictive, depending on what is meant by the term 'addictive'. There are few, if any, gamers who have not rushed home from work or school to play their latest game – maybe even neglecting responsibilities in the process. People talk about some games (especially puzzlers, like *Tetris*) as if they were drugs. Should we ban or regulate them like any other drug?

Hardly. Unless you also want to ban soap operas, board games, paper and dice role-playing games, good books, and almost every other leisure activity. Strictly speaking, addiction is defined as the compulsive need for and use of a habit forming substance (as heroin, nicotine, or alcohol) characterised by tolerance and well-defined psychological symptoms upon withdrawal (Webster's dictionary, tenth edition). So while the lure of entertainment is at its heart much the same as that of many dangerous drugs – they provide a temporary escape from the problems of the real world – they are not strictly addictive. They can, however, be habit forming and trigger compulsive behaviour.

And while the physiology of addiction to drugs like heroin or cocaine have been well documented and are clear, little is easily explained in cases of

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'addiction' to TV, gambling, videogames, or any other entertainment activity.

The main difference between traditional forms of entertainment and videogames is control. As opposed to books or movies, which enable vicarious living in another world through someone else's eyes, videogames enable self-controlled exploration, and eventually enable the possibility to become the master of an entire virtual universe.

As well as providing the escapism of books and TV, videogames also provide the challenge of traditional games, appealing to humans' competitive nature, and providing a sense of accomplishment when finished. 'People have very little control in their lives today – there is less freedom than in previous generations, and

There are few gamers who have not rushed home from work or school to play the latest game

'videogames provide the perfect means for a person to gain control of their life,' says Dr Margaret A. Shotton, author of *Computer Addiction? A Study of Computer Dependency*.

Shotton concludes that the psychological process behind male teenagers becoming 'addicted' to videogames is closely related to the prevalence of anorexia among teenage women. In both cases, the total power a person may hold over one particular element of his or her life (playing a videogame, or eating) is heinously abused.

So, for a variety of reasons, games are compelling, they can draw a player in and keep him or her interested for hours at a stretch. But a strict textbook definition of addiction requires that the addict is harmed by their dependency. Can videogames go from being a relaxing pastime to a dangerous compulsion that takes over a life, causing the neglect of family, relationships, and other responsibilities? Considering we live in a world where people hate Jeremy Beadle, the answer is, not surprisingly, yes.

'It's not so much the videogames, it's a flaw within the individual that's brought out by the availability of the games,' says Edward Looney, Executive Director of the Council on Compulsive Gambling of New

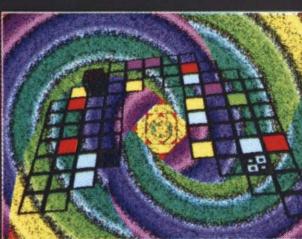
Jersey, USA, and an expert on compulsive behaviour. His group, set up to help compulsive gamblers, has in recent years received an increasing number of calls from people who are having problems with addictions to videogames, mostly arcade games. People addicted to videogames, he says 'are doing what all addicted people do, which is avoiding their real problems.'

Looney doesn't think banning or regulating games is a solution. 'Most people can do these things in a normal and healthy way,' he says. In fact, Looney has observed that taking away the addictive activity or product often just causes those suffering from addiction to switch to a 'spare tire' or backup addiction. Take away the videogames, he says, and the person may switch to a dangerous food addiction or something similar. The key, according to Looney, is to fix the underlying problem – not to treat the symptoms.

One group who can suffer from long paly without necessarily being compulsively addicted is children. 'Many kids can't define limits,' says Dr Miriam Saltmarch, professor in the Department of Food and Nutrition at San Jose State University, California. 'Like the studies of rats that keep pushing a button that triggers the pleasure centre in their brain until they die, lots of kids will play these games until you stop them.'

A degree of parental control should be exercised in this matter. 'If a person can't stop themselves, they need to have limits set for them by a parent,' argues Saltmarch. 'There are a lot of kids who can quit. And then there are the kids who crave stimulation for their brains. Kids with Attention Deficit Disorder (ADD), once called hyperactivity, tend to love videogames.' Saltmarch limits her child, who has ADD, to an hour a day. 'But it can be positive for a kid with ADD to play for a long time, if they're good at it. It doesn't frustrate them and it builds self-esteem.'

So, it would seem that videogame 'addiction' is a symptom of a deeper problem, and not necessarily a problem in itself. The infamous American National



Phantasmagoria (left) and *Endorfun* (right) are two PC 'videonastics'. *Endorfun* recently received bad press for brainwashing kids (see p13)

Rifle Association would say the same about assault weapons, however. Clearly more research is needed.

Do videogames make you antisocial?

David Sheff observes in his book *Videogames, A Guide For Savvy Parents* that whereas 'Generations of children had been imbued with Mickey [Mouse]'s message: 'We play fair and we work hard and we're in harmony' and so on, [the game] *Mario* imparted other values: Kill or be killed. Time is running out [and – perhaps most importantly] You are on your own.'

It's an interesting point. Certainly, of all the charges videogames stand accused of, this one would, at first glance, seem to have the most validity. Videogame playing can be a very solitary activity. As noted above, one of the attractions of videogames is their ability to let players escape the real world. Does this cause players to withdraw from their peers? Are videogames fundamentally antisocial?

Most people who have actually played games will adamantly say that this is not the case in the majority of situations and, in fact, the exact opposite is true – videogames are both an extremely social activity and a great social equaliser. 'As a trend, I've found that introverted people have increased their social circles through playing videogames, but I have never found that extroverted people become more withdrawn or isolated,' says Dr. Shotton. When dealing with this question, it is very important to take into account the genre of games under discussion.

Fighting games are probably the most social of all game types. They enable people to compete in a friendly challenge of skill, regardless of physical ability; in that sense, they are a great social equaliser, permitting anyone to participate. Informal surveys conducted at arcades found that the majority of players who played against the machine said it was 'boring,' and relished being able to play against other people, sometimes to the point of giving strangers money when they ran out, so that they could keep playing.

Playing an RPG or adventure game, which may seem like a textbook definition of a solitary activity, can also become a social activity if two or more people decide to play together. Even though only one person is manipulating the joystick, both people can play the game, working together to solve puzzles. Usually the nonplayer takes on the key role of mapper. Since



The PlayStation also receives its fair share of blood and guts. *Biohazard* (main) enables players to fulfil their dreams by crushing zombie heads. *Loaded* (right) is total carnage, pure and simple

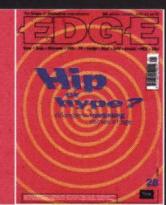
RPGs and adventure games are less dependent on fast reaction times, all the people playing can consult on what the next move should be. This kind of game enables players to team up, and it can create camaraderie.

In fact, **Edge** makes the contention that it isn't RPGs that can be the most solitary games, but rather shooters and platform games, which, *Sonic 2* aside, are fundamentally one-player games. Still, there are many leisure activities (like books) that are very solitary. That isn't the problem – everyone wants to spend time alone now and then, and the escape potential of videogames is well known, and in fact is one of their main attractions. The real question is, 'Does playing solitary games make you withdraw from social interaction with other humans?' And the answer seems to be a resounding no. Dr. Miriam Saltmarsh has found that with many children, 'it gives a lot of these kids something to have in common with other kids. It can be an equaliser and a basis for making social connections that they otherwise couldn't make.'

Conclusion

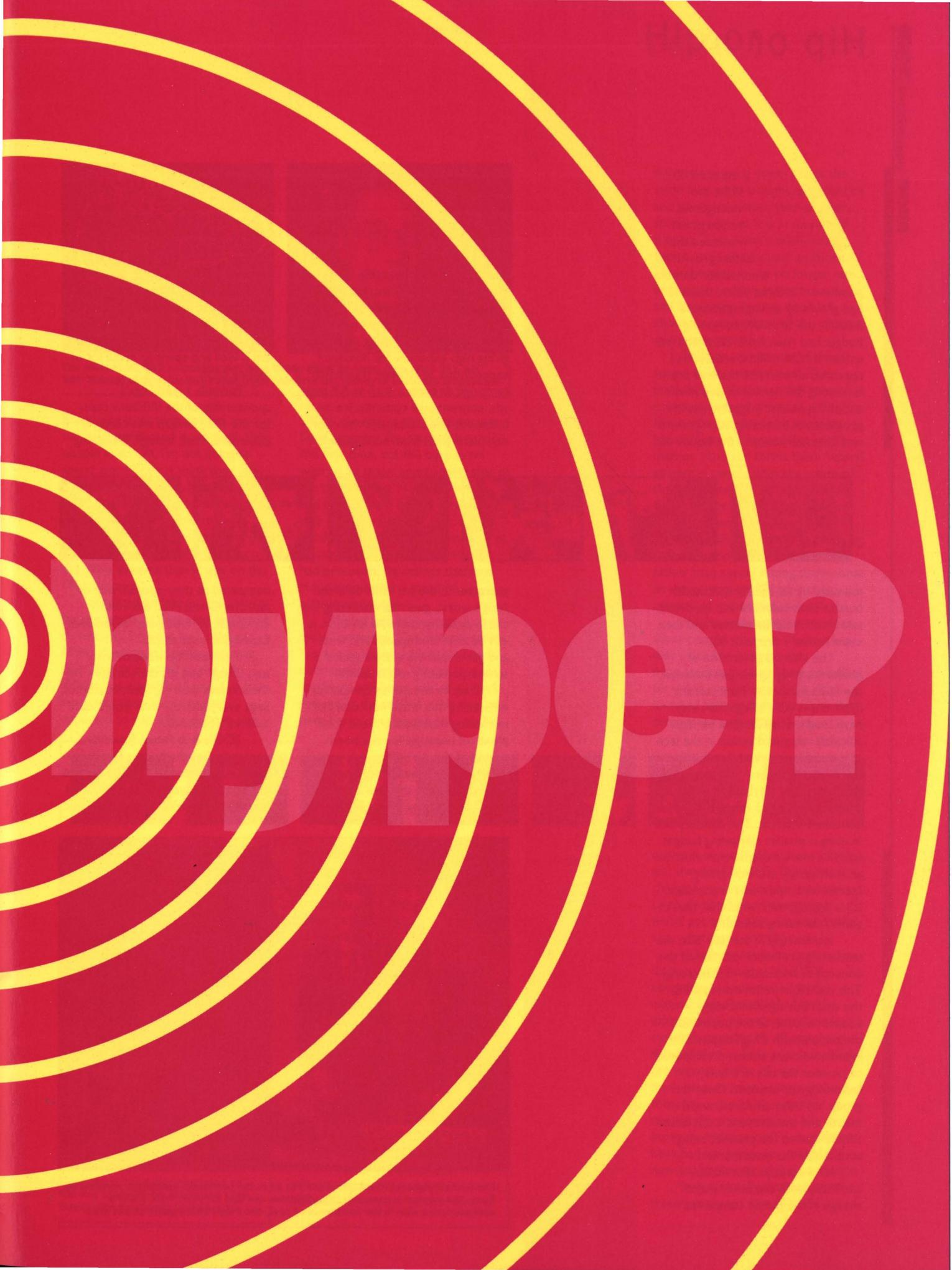
To conclude, are videogames harmful? The risks from epileptic seizures are real, but they affect only an extremely small portion of the population. Certain addictive personalities can make a compulsion out of anything, and videogames are no exception, but for the vast majority of people, adults and children, the answer is clear: videogames are nothing more than what they appear to be – a great way to relax, and a lot of fun to play. Enjoy.





Remember when Sega spent millions of pounds sponsoring the 1993 European Grand Prix, ensuring that its officials wore Sonic costumes? No, us neither. Such is the ephemeral nature of marketing, which only adds to the importance of getting it right. Here, the industry explains how game promotion is entering a new era.







By the start of 1994, the videogames industry had witnessed the fastest growth in a consumer durable good ever. In three years, demand had grown by an unprecedented 3,000%, the total UK marketing budget had risen from £2 million per annum to £24 million, articles had appeared all over the national press lamenting the demise of pop music and the specialist magazine market proliferated. Inevitably, such growth was unsustainable and the boom was



Sony TV ad, Christmas 1995

followed by an equally spectacular bust as both software and hardware sales reached their plateau and then experienced a dramatic fall.

The interim generation of platforms bridging the gap between the 16bit market and the current 32bit onset (CD³², Sega 32X etc) have fought a valiant (and perhaps suicidal) rearguard action in the face of a shrinking marketplace, but it is the 32bit machines – and particularly the Saturn and PlayStation – that are truly attempting to reignite consumer interest. The difficulty lies in using a smaller marketing budget to sell a more expensive product to an increasingly technologically literate and media-aware populace. It's a juggling trick which has led to some interesting solutions.

Increasingly in the late '80s, the marketing profession pioneered the concept of trickle down marketing. This technique relies on targeting the small but significant early adopter section of the population – the people with a high disposable income who are almost predisposed to pioneer the use of a new technology or product. Once this group has been ensnared, word of mouth and the chimeric 'cool factor' should lead to the product being adopted by the mass market.

It's a concept that fits in admirably with the other major change in the games companies'

Once again Sony brings out the SAPS team to plug the PlayStation. It's Christmas, but Mum and Dad don't know what to buy the kids. Don't worry, get them 'stick' – it's versatile, it's fun, it has hundreds of uses. Whatever you do, don't waste your money on that brain-washing PlayStation, urges the SAPS man



Is the videogames industry trading a hype-fuelled agenda for a hip new image? Edge investigates the art of the hard sell

tactics: guerrilla marketing. This may sound like too many marketing execs have been on paintball assertiveness courses, but it is in fact a very effective marketing technique giving high exposure for minimum expenditure. It eschews traditional campaign directions such as full page ads, conventional commercials or billboards and substitutes them for, say, placing ads from an in-game

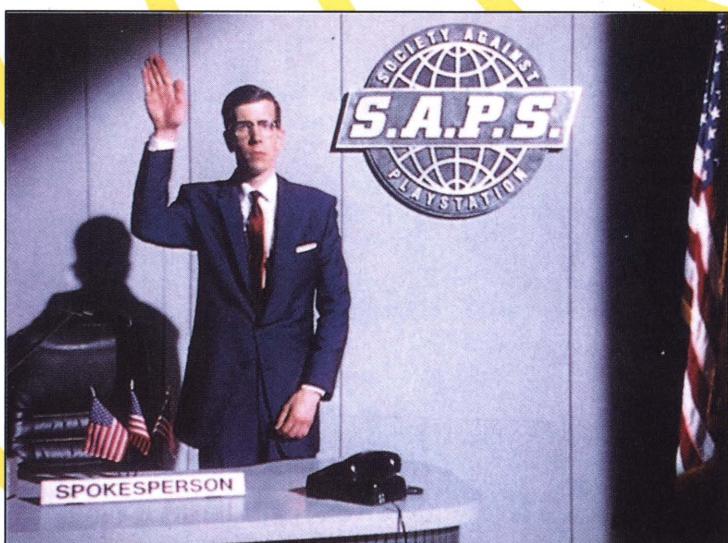
Manager of Saturn. 'In terms of ratio I wouldn't know, I wasn't around then, but put it this way: sponsoring Formula 1 would be well out of our league now whereas back then we did it well and spent an awful lot of money on it.'

Formula 1, and Sega's sponsorship of the Williams team for the 1993 season was certainly expensive. That, though, is nothing

compared to their sponsorship of just one Grand Prix, the 1993 European GP held on a rain-sodden Donington race track.

'I've seen the video of that,' says Crisp, 'and it's unbelievable. All the starters wearing Sonic costumes, Sega everywhere – that would cost millions of pounds.'

3DO's Bob Faber, however, contends that the budget is still there if it's needed. 'Throughout the industry when you needed to spend money, historically producers would



The Society Against PlayStation (SAPS) ad is the prominent campaign adopted by Sony. The central message is 'PlayStations are bad for you'. With a SAPS spokesperson who is the antithesis of cool, the PlayStation gains street cred

Hip or hype

EDGE magazine January 1996



The current UK 3DO campaign may be a cheap stunt to some (see Edge 27), but 3DO Managing director Bob Faber (right) asserts the money is available if required



spend whatever they needed to to sell their products. I don't think that people said, 'Oh, I'm not going to spend any money.' I think they said, 'Here's my customer, here's the appropriate amount for me to spend and here's how I should spend it.' If you look at the marketing spend per system sold it's probably higher on the 32bit systems than it was on the 16bit systems.'

Sega's ad budget for the Saturn for the whole of Europe is expected to reach £25 million by Christmas 1996, of which it is estimated that £5 million is devoted to the UK. Whilst not exactly peanuts, it is four times less than Sony's budget, expected to top £20 million in the

UK by the end of the same period. Sony, entering the marketplace for the first time, are the big players with an ad spend approaching that of the boom times. Not surprisingly this makes them bullish about their own prospects. While PlayStation Product Manager Phil Harrison acknowledges that the market has had problems, he defines them as industry-led ones instead of consumer doubts.

'We've just moved into a new cycle,' he states. 'The overall market has decreased in value but it hasn't decreased in units. There's lots of hardware still being sold of all kinds and whilst the tabloid press may not have been covering the likes of the

entertainment. It doesn't have the same peaks and troughs as it used to and it will be a more year-on-year steady growth as it is in music and movies. Two, I don't think video games are a phenomena anymore. They themselves are no longer new. Innovations within games are new and interesting but we don't talk about the reinvention of the cinema every two years.'

The key word at the moment seems to be 'reinvigorate'. The marketing strategies of the games companies are all aimed at pulling in those who bought 16bit consoles but have since dropped out of the market. Harrison terms them 'lapsed gamers' - people who are aware of the games market and the possible entertainment value of games, but are no longer active consumers.

The difficulty now is in reaching them, for companies to find them rather than simply letting them come to the companies. Of marketing offensively rather than defensively.

'We're now trying to speak to those people where in the past we didn't need to because the mass-market has just been grovelling for video games,' says Crisp. 'You know all the stories about Sonic 2 coming out and selling three



Sega TV ad.
September 1995

The Saturn advert forces home the message, Saturn equals speed. Fast cuts, frenetic action and surreal visuals (such as eyes being sucked out of their sockets) make the Saturn ad unusual, and at times confusing. The game on display here is, of course, *Daytona*.

quarters of a million copies in a day and that kind of stuff. Things have changed now, we've got a market that's declined enormously and we've got to be a bit cleverer in the way we market our products.'

Which means for a start ditching the fast-cut, 'yoof' TV advertising as epitomised by the original Sega Pirate TV ad or the infamous Pot Noodle one. Sony's research into the 18, 19 age group showed that as soon as they sniffed the vaguest inkling of yoof marketing, as soon as they realised that they were being targeted specifically, they switched off instantly. Videogame TV executions have had to change to combat the new sophistication of their audience.

'It was a really exciting sector three years ago,' says Mike Perry,



This Saturn stunt was projected on the eve of the Major/Redwood vote. Guess who the heads belong to?

Sega and Nintendo 16bit machines as vigorously as they were two years ago, there are still plenty of consumers out there for whom video games are a major form of entertainment.'

The core of Harrison's argument is that the nature of the games market itself has changed. That videogames have moved from being a peripheral phenomena to becoming a legitimate consumer good in their own right.

'I think two things have happened,' he says. 'One, we have moved out from the ten to 14 year-old boy market and have expanded the business to have a much broader appeal. As soon as you broaden the appeal you lessen the impact in any one age group, so it becomes a more general form of

Continued next page

Hip or hype

Continued

MD of Simons Palmer, the company behind Sony's SAPS campaign. 'It was fresh, new and crazy, but now other youth advertisers are being crazy for craziness sake without any new ideas behind them. Quick cuts, crazy things happening, MTV style graphics... it's not fresh, it just becomes wallpaper. Nowadays a 15-year-old is so sophisticated - he's a hell of a lot more media literate



Sega US TV ad, July 1995

than a 35 or 45-year-old and he sees through it immediately.'

'The advertising has to do a lot more than make a brash noise and drop its trousers, which was what it did a few years ago,' comments John Hackney, of Sega's agency McCann Erickson.

Inevitably, there's a certain amount of sabre-rattling between the two agencies over their respective campaigns, both somehow contriving to paint their opposition as making retrograde steps. Perry judges the Sega campaign to be very 'Ridley Scott '80s' while Hackney sees the core philosophy of the SAPS campaign as harping along the lines of your mother wouldn't like it. However they're judged, though, there's no doubt that they are both targeting older audiences than before.

'With the new consoles and the cost at which they're going to the market, we're targeting an older audience than we've done in the past,' says Crisp, '16 to 30-year-old men. Mega Drive advertising was designed to appeal to a younger audience. That's one of the key changes I think. Also, as the industry has matured, people have become a lot more advertising-literate. Ads have had to become more original than in the past, which glorified the gore. You've got to try and bring the standards of game advertising up to meet the standards of other industries like beer, cars etc.'

Nintendo, represented nowadays by Hampshire-based THE Games, find themselves in an odd position in the run up to Christmas. Whilst Sega can comfortably

concentrate on the Saturn, THE still have to market the increasingly outdated SNES in order to tap into the seasonal consumer spend. Luckily they have two big releases to exploit, *Donkey Kong II* and *Killer Instinct*, both from Rare.

THE's Alexander Fitzgibbons forecasts that both games will command a total marketing budget of £1 million plus, equal to the



mistaken. You'll see us aiming at the same market that we had before, 12 to 18. Now you can aim a product at a 15-year-old and in many ways that can still be aimed at a 22-year-old as well. The markets aren't so strictly defined.'

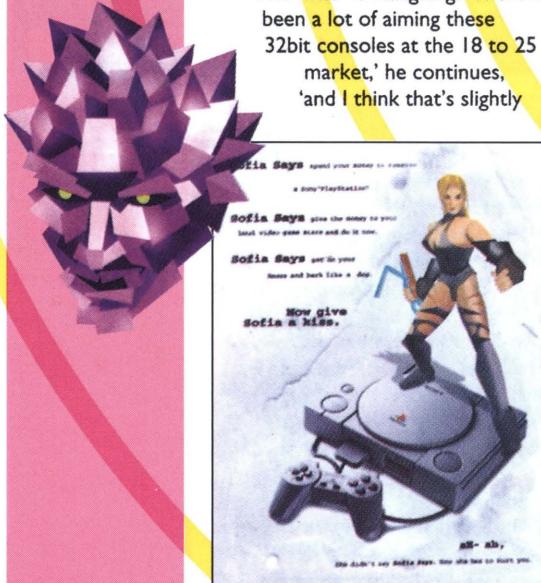
Fitzgibbons coyly hints at some Ultra 64 teasers hitting print or screen around the Christmas period. Rigidly defined or not, in the new



marketing topography TV advertising is increasingly becoming the second stage of a campaign.

'We were the first ones to say - and people ridiculed us when we said this last year - that high profile TV advertising is not the way to reach the customer for these products,' comments Faber. 'The customer for these products is smart, they are well-informed, they are technology literate and they are very interested in the products so you need guerrilla tactics to break through the clutter that's in their everyday lives and get right at the customer you want to buy the product. Now everybody's doing it.'

The 'who' is intriguing. 'There's been a lot of aiming these 32bit consoles at the 18 to 25 market,' he continues, 'and I think that's slightly

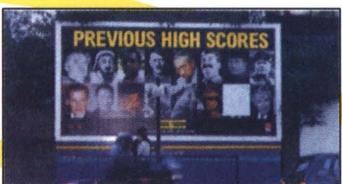


The US PlayStation campaign has so far been dire. Having ditched its daft 'Polygon Man' mascot (surely the antithesis of PlayStation's abilities), recent ads (above) are equally tacky

Faber dismisses TV advertising as a true massmarket tactic and intriguingly goes on to add that the 3DO is not a massmarket product. For Sega and Sony, who are trying to get their systems to become one, the groundwork - the recruitment of the crucial early-adopters - happens way before the campaign goes to the mass market. Even when it does, though, companies are being far more selective with their media buying than before. Conventional marketing is now being used in unorthodox ways.

Jeremy Crisp: 'Certainly we're doing a TV ad and we've had a 60 second cinema ad running for three months now, and in those ways they are conventional forms of advertising. However you'll find that you'll only see our cinema ad in the first week of a film running. We want the guys who went to see *Pulp Fiction* or *Braveheart* in the first week, we don't want the people - at this early stage - who went to see it

Hip or hype



dictators. The ASA demanded the ad was changed to hide Jacques Chirac, since it portrayed him as a tyrant

in the third and fourth week. So if you're doing conventional creative work try and be unconventional in your media buying.'

Trickle down, catching the image-leaders, has been the key to the launch of the 32bit machines into the wider public's awareness.

'It's an interesting concept this early-adopter marketing tactic and marketing ideas,' says Crisp. 'In the drinks industry trying to get early adopters is quite easy. You get your product in the right pubs which might only be 200 or 300 key bars in the whole country. If they're in there, then the people in those bars will enjoy them and tell their friends and all of a sudden you've got Absolut vodka or you've got Sol lager – two classic examples of trickle-down marketing.'

Crisp goes on to say that he thinks the games industry is too young to have experienced trickle down effects just yet. However, that hasn't deterred Sony. The Saturn may have come to the market with the Sega brand name firmly to the fore (Crisp's admittedly biased viewpoint being that the name has a built in 'street-cred image') but Sony were starting from scratch.

'We wanted to establish PlayStation as a credible product first so we used some sponsorship and viral marketing to achieve that,' says Harrison, 'to get it out there and expose people to the graphics and the games. Get them, the influencer and the group leader, talking about it. Every peer group, be it playground or workplace, has a group leader, someone who's more informed than the others. If we can

reach him or her and have that person start talking about the PlayStation in positive ways, that has a wildfire effect of spreading around your target audience.'

Sony's pre-launch activities were a classic example of trickle down. The company paid for a presence at the 15th birthday celebrations of influential style magazine *The Face* and were also present at competitor *Ikon*'s launch. It has a permanent room at the hipper-than-thou London club *Ministry Of Sound* and there is even a machine lurking backstage in the green room by the *Top Of The Pops* studio. Special T-shirts were commissioned from designers Antoni and Alison and then handed out to celebrities, reportedly gracing

of the marketing world by trying to be clever and innovative and different; making the idea of the ad stick in their mind rather than bombarding them with hundreds and hundreds of messages.'

Actually

getting your message to stand out from that background noise is the supreme challenge of marketing. It's especially relevant to the next gen consoles which are, as Harrison stated in *Edge* 26, 'fighting for the same £300 that could be spent on a mountain bike, a stereo or a couple of pairs of designer trainers.'

Hence guerrilla marketing: squeezing the largest amount of publicity out of the smallest

Even PlayStation-branded roaches were to be had at the Glastonbury Festival this year

famous bodies appearing in TV locations as diverse as *Newsnight* and *The Big Breakfast*. Even PlayStation-branded roaches were to be had at the Glastonbury Festival earlier this year.

On this point, Harrison is very careful: 'We had some postcards with a serrated design on them. I don't know what they were used for,' he said, speaking corporately. 'God forbid that they got used for drug paraphernalia.'

Hmm, quite. Still, roaches, postcards or whatever, the idea is to create a frisson. At this stage of the campaign the company aren't so much trying to sell a consumer durable, they're trying to convert that £300 box of electronics into a lifestyle choice. Convince a journalist of a magazine like *The Face* that you have a cool product, and they in turn pass on the information to about 100,000 other people.

'Chronology is the most important thing,' says Harrison. 'We wanted to reach the early-adopter first. If you reach them first you can comfortably go to the mass market second. It's impossible to do that the other way round because the early-adopter will reject anything that is already a mass market item.'

Jeremy Crisp: 'We're trying to appeal to early-adopters' knowledge

budget. It's not the only technique for generating the maximum exposure for the minimum outlay (Nintendo's sponsorship of a five day music event gives them two hours of primetime exposure on the Christmas TV schedules for less than three full page ads in *The Sun*) but it can be the most spectacular.

Along those lines Sony will extend the SAPS concept to include



1993: Nintendo's Rik Mayall campaign and Sega's *Pirate* TV concept would now be considered too youth-oriented

stickering tube trains and possible demonstrations outside stores selling PlayStation. Probably the best example though, and certainly the one that illustrates the advantages of quick reactions to topical events, was Sega's stunt on the eve of the Tory leadership challenge this summer. From a boat on the Thames, a huge blow-up of *Virtua Fighter* was projected on to the House Of Commons with the heads of John Major and John Redwood

Hip or hype

grafted to the polygonal figures. The text around the figures simply stated 'Sega Saturn comes out fighting'.

'One of the benefits of Sega is that we're very quick to get our marketing into what's going on out there, making it contemporary and interesting to people,' says Crisp. 'If an opportunity comes up we can act on it very quickly.' As opposed to a lot of big, ponderous companies who waste a few weeks waiting for red ink go-aheads from marketing directors and boards, he says.

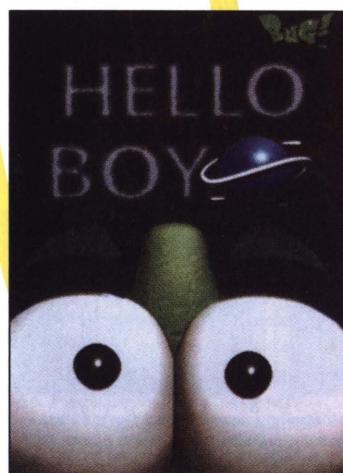
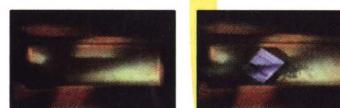
'We use that as an advantage over our competitors and try to exploit the fact that we can do it and they can't. As a marketing tool I guess we'd call it guerrilla marketing. Of course, when we do have the money we can do traditional marketing activities as well.'

While Crisp declined to comment on (and indeed denied

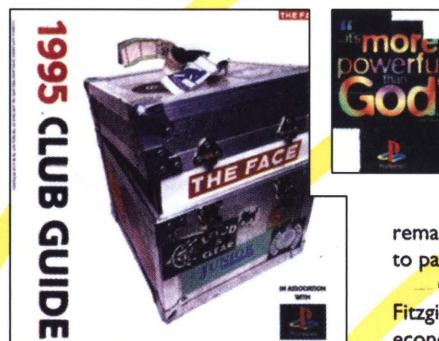


PlayStations even appeared in the green room of Top of the Pops, here being played by Damon of Blur

300 TV ad, April 1995



Sega's *Bug* tactics mock the Wonderbra advert while London's cabs are also taken for a ride



Sony sponsored The Face's 1995 club guide, and even distributed 'drug paraphernalia' at Glastonbury (top)

responsibility for) the vaguely illegal Thames escapade, he did detail some of the thinking behind various aspects of their print advertising.

'One of the things we try and do, because we have less money, is that when we buy advertising space in a magazine we don't buy your traditional one page or half page ad,



The message of this 300 advert is simple: if you're not playing with 300, you're just playing with toys. Unless of course you're playing with a PlayStation or Saturn

we try and incorporate it into part of the magazine; seeing that the strap line sits in with the attitude of the magazine or is part of the copy. For *Bug* in *Select* this month we've got six stills of *Bug* in the personal ads page and we've also taken out two personal ads that *Bug* wrote in. [We do] these kind of things because they're clever and people remember them as opposed to your traditional ads which people become numb to if they're reading a 300 page magazine with 100 ads.'

One of the key aspects of this form of advertising is originality. 'One of our *Bug* executions is a close-up of *Bug* and his massive big eyes. We've closed-up to that really tightly so it looks like a pair of breasts. Above it you've got 'Hello Boys'. It's not a Wonderbra comparison, we're not going to be putting it beside any Wonderbra ads like *Kaliber* did, probably because it's been done before and it wouldn't be in our benefit to do things that have already been done.'

The real question, though, is whether the market can expand again to the dimensions it reached in

late 93. Harrison might view it as a cyclical environment with Sony leading the charge back up the upwards curve but all the sharp marketing tactics being employed will be worthless if the consumer remains unwilling, or perhaps unable, to pay for the goods.

Crisp is evasive whilst Fitzgibbons points to the wider economic indicators: 'I think with the launch of the Saturn and the PlayStation and, hopefully the Ultra 64 in April, the market will pick up again. What people tend to forget is that the country has been in deep recession for the past few years which will inevitably affect what people spend their money on.'

He goes on to cheerfully forecast that the worst of the recession is now over. Harrison, too, is equally optimistic: 'I think we are entering into a new growth



period which will make the market even bigger,' he states simply.

Faber also sees the market growing, but dismisses the 32bit machines as a stunted product cycle destined not to run its full course before the 64bit wave hits.

'I think the next really big wave is going to be 64bit products,' he says. 'The experience is so much better but the price is similar to the 32bit systems. They're coming so quickly on the heels of the 32bit product introductions that at its peak the 32bit market will probably only be 10% of the 16bit market.'

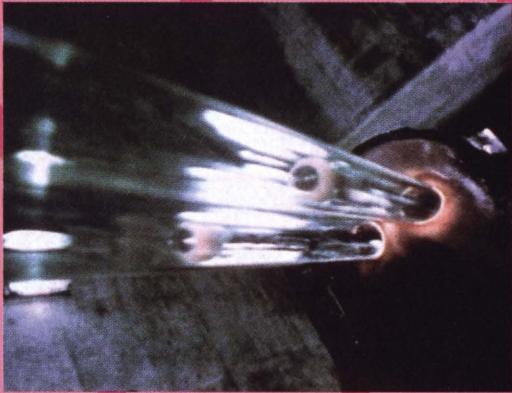
Whichever way you look at it, once we get to this stage of the respective campaigns the competing systems and relative technical merits of the various platforms fade into the background. Even the traditional bugbear of software availability and quality takes a backseat. For the mainstream consumer, isolated from the analysis of the specialist press, what counts now more than anything is the marketing executive's skill at transforming a £300 box of electronics into a small object of desire.



Sega Saturn Campaign

McCann Erickson started their Saturn campaign with extensive market research, just as Simons Palmer did for the PlayStation.

'We took on the Sega account in preparation for the Saturn launch on a pan-European basis in March this year,' explains John Hackney, Vice President for Europe, 'and in the preparation for that and the subsequent development we did quite a lot of research over Europe into the Sega brand. One of the things we did as part of the projective techniques of the research was to ask people, 'What are Sega like? Imagine if you went into that



The Saturn ad is set within a fictional Sega test building, an idea resulting from extensive market research



building you see at the top of Cromwell Road, who would be in there and what would the people be like?'

'What came out is an image of Sega as a corporation totally dedicated to gaming. They would imagine a really eclectic mix of people inside the organisation; technicians, young people in trainers testing games, inscrutable Japanese boffins, all working night and day to perfect the best games systems. On top of that was the feeling that Sega – more than Nintendo which came across as very safe, very Disney – had a bit of a 'fuck you' attitude. They think ultimately that Sega probably doesn't like them. It tolerates young gamers and may offer them some respect if they get it right and are good.'

Hackney mentions the kind of 'playful disdain' and arrogance exhibited by people such as the late Ayrton Senna as an example of what their research dug up. It's an interesting finding, probably one whose seeds were planted back in the time when Sega's corporate icon was a hedgehog with supposed attitude and one that the agency worked hard on to turn into a finished commercial.



Market research indicated Sega is imagined as being totally dedicated to gaming – John Hackney, Vice President, McCann Erickson Europe

First though came the pre-launch campaign, rolling out slightly behind the PR blitz designed to hype the machine and let the public know Saturn was on its way.

The advertising acknowledged people already knew the Saturn was coming. 'We weren't interested in those that didn't,' says Hackney. 'We were working in tandem with this snowball effect the PR was having.' So Saturn wasn't branded, it was left for the public to work out where it was. 'We bought poster sites but in horrible locations – we didn't buy high profile sites. We were in magazines like Loaded so we were reaching a particularly discreet audience there.'

'We allowed the advertising to be sufficiently cryptic so it could only be decoded by those who knew what a blue orb with an 'S' around it was.'

The actual massmarket ad campaign built on the results of the market research and was designed to blend the images that gamers apparently had running through their heads with imagery that McCann Erickson thought fitted with the games themselves. Cinematic references were used extensively, Hackney stating that a lot of the films gamers watch are along the lines of Bladerunner and Terminator, so incorporating their imagery into the ad would give it enough consistencies and commonalities to work on a European level.

Though the theme of the campaign is slightly less immediate than Sony's execution, Hackney reckons they've set a tone and an approach that can easily be followed through ensuing ads.

'There's a lot more we can do in terms of lifting the lid off this semi-imaginary, semi-real world of what Sega is all about. I've been to the AM2 development place in Japan and some of this actually exists over there. That's the whole idea for us, to build some of that imagery in and I believe we can create a labyrinthine story around what Sega has inside the darkened corners of its empire.'



Sony PlayStation Campaign

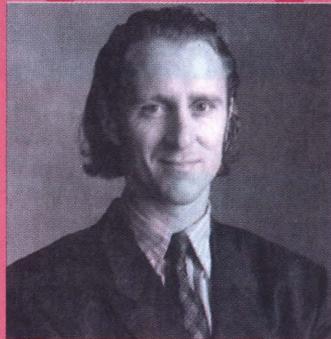
Sony's SAPS campaign (Society Against PlayStation) started out, as most campaigns do, with extensive market research carried out by their agency. Simons Palmer were planning a pan-European campaign and had to come up with a strategy that could be dialled into by all the European countries, regardless of cultural boundaries. The research showed two things; one, that the PlayStation pre-launch was already perceived as a powerful machine and two, that fast-cut 'yoof' TV advertising was simply not going to work.

'We always had the objective of taking the PlayStation to the mass market and appealing to a broad range of potential consumers. We took a structured approach to do that through a traditional marketing mechanism of reaching early-adopters first', says Simon Jobling, head of marketing for SCEE.

Power was a concept that translated admirably across borders, and from mid-Summer a series of executions appeared showing a man's head exploding.

'The campaign was really in two halves,' explains Mike Perry, of Simons Palmer. 'Pre-launch, which was the single piece of imagery that said power – that was an exploding head. It's basically something that blows your head off and it's dangerous, all those overtones. That single image has gone everywhere across Europe from point of sale to print advertising in various forms, you may have seen the bloke's head actually explode at ECTS in London. The thought was simply to tell people that Sony were bringing out this very powerful product.'

'However, for the launch we wanted to do something completely different. The pre-launch featured a very



The Sony ads used a mad US pressure group because all of Europe could laugh at it. Handling the account were Mike Perry (top left), SCEE's Simon Jobling (left)

traditional approach to the advertising but we wanted to try and explode the whole thing with a campaign idea that moved away from the fast-cut images and heavy metal track – MTV land if you like – which all our research had shown was becoming a bit of a cliché in this marketplace. We came up with the idea of a typical barry American organisation that was actually anti-PlayStation. A bit like a sort of McCarthy period, Reefer Madness organisation who were dedicated to suppressing the world's most powerful computer games. It's a classic keep off the grass idea.'

Simons Palmer took great care in imparting realism to the series



S.A.P.S.



of eight TV ads, even down to hiring American lighting technicians to give the illusion of a US production. 'It was supposed to look like a mad organisation in the middle of America,' says Perry.

The 'don't do it, it's dangerous' angle is a tried and tested standby in the youth market but according to Perry, the American dimension to the adverts is the key to their success. The whole of Europe had to buy into the underlying concept and the one common denominator across the occasionally fractious continent is its desire to laugh at Americans. By taking it to a third party, Simons Palmer created something that would be universally appreciated.

Unusually for a pan-European campaign, individual territories were allowed to tinker with the wording of the ads and tailor them even more specifically for their home markets. The result is a series of mildly insulting acronyms in nine languages. In France SAPS becomes CAPS (French for idiots), in Germany something else etc.

It's also been designed as a through-the-line campaign, one that will allow the unhinged fictional organisation to crop up in a number of places.

Phil Harrison: 'There are some things that we're doing with the SAPS concept. We could, for example, have people parading as SAPS outside stores warning you not to go in and buy a PlayStation. We've got some press advertisements where the SAPS character warns you of the dangers of a PlayStation. Now logically, if he's telling you not to buy a PlayStation, in theory he could start to suggest products that are approved by SAPS.'

No prizes for guessing what they could be.



43 PLAYABLE GAMES

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Virtua Fighter 2



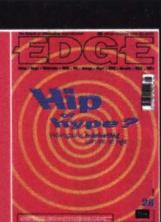
Format: Saturn

Publisher: Sega

Developer: AM2

Price: £50

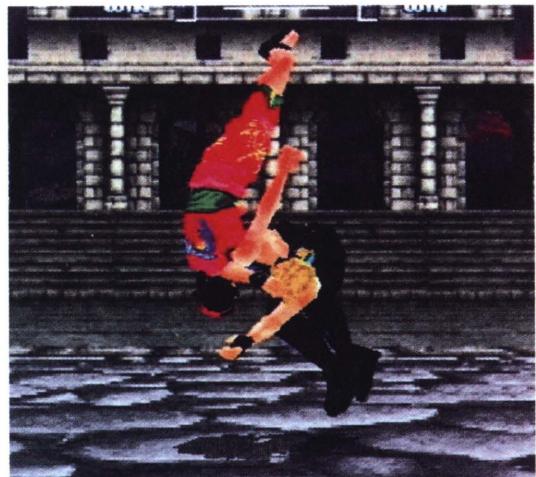
Release: January (UK)



Everyone expected Sega's Saturn conversion of *Virtua Fighter 2* to be like its predecessor, a solid production, but did anyone expect it to be quite this good? With AM2 chief Yu Suzuki proclaiming it his favourite game, perhaps it should be no surprise that it is the finest 32bit console game to come out of Sega to date.

With 1.5 million advance orders in Japan alone, there is no doubt that *Virtua Fighter 2* is a title with immense standing. Sega needs it to reaffirm its own status in the videogame company premier league, gamers need it because of a lack of software and the Saturn needs it to prove it can do amazing things when asked. VF2 needed to be good for so many reasons. It isn't just good, it's amazing.

All the basics from the original *Virtua Fighter* are in evidence: the



VF2 runs at the maximum speed of 60fps on the NTSC version Edge reviewed. Sega Europe have asked AM2 to ensure the PAL version doesn't suffer from a squashed screen. Although the PAL version will run at 50fps, it's possible AM2 will optimise code to make it just as fast

easy three button control mechanism, the fluid camera movement, the eight primary fighters and the compulsive play. However, there are many improvements and additions to this basic recipe which not only keep the VF series in line with its competitors, but in key areas, clearly allow it to surpass them.

Visually, *Virtua Fighter 2* has no equal. Using the Saturn's highest screen resolution (704x480) and running at the same speed and elegance as the coin-op (60fps) it is, quite simply, a staggering achievement. It captures the graphical finesse of the state-of-

the-art coin-op with few compromises. In fact, those familiar with the original Saturn game could be forgiven for thinking this was running on an entirely different machine.

As with the original, VF2's warriors possess a real physical presence, accentuated by the animation which has such a high level of purity that the smallest, most intricate differences between the characters and their movements are visible and even exploitable. For example, Lion, one of the two new fighters, looks elastic and ductile, and this is so well conveyed by the animation that



Pulling off special moves like this clothes line is surprisingly easy with the simple control method



Pal's kickflip is both an offensive and defensive strategy. In attack, she can pummel her opponents faces with her feet. In defence, the move is a swift way to escape damage

the player is inspired to adopt a more athletic approach to battle – darting in and out on the opponent with quick, jabbing attacks.

There are an incredible 50 to 70 moves per fighter, ranging from low-key alternative kicks, punches and elbow thrusts, to more noticeable throws, flying attacks and devastating combos. Character-specific moves are mostly used to compliment the player's skill, rather than make up for a lack of it. Many are barely perceptible as specials: Kage's heel kick and Sarah's forward jumping round-house, for example, are undramatic but effective strikes which merge with the standard moves. This is in no means a complaint – it adds a fluidity to the action which can be destroyed when games rely too heavily on extravagant specials. Nevertheless, there are some spectacular hits. Sarah's jumping clothes line and Wolf's throws (including the 'variation German suplex' with which you pick up your opponent from behind and smash him on his head) being amongst the more flamboyant.

There are several more reasons why VF2 is a totally rounded beat 'em up experience. There are no unblockable moves, meaning that

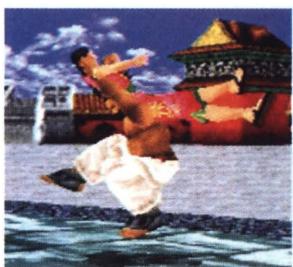
the style of battle is moved away from 'who can execute the killer move first' to 'who can formulate a series of attacks and counter-attacks'. VF2 is a game that supports both cerebral and instinctive gamers at once, but, in the long run, favours the former.

Furthermore, the designers of *Virtua Fighter 2* are fully aware of the importance of recovery and counter attack. Each character has a move that will get them off the ground quickly when knocked down, and there are plenty of specials that involve, and work in conjunction with, defensive moves.

Virtua Fighter 2 features two new characters: Lion, and Shun – an amusing old drunkard who sways around the arena looking as though he is in permanent danger of collapsing. This should not be



VF2 has two intro sequences. The first (top) is a superb realtime demo while the second (middle) is pre-rendered. A new Saturn inclusion is Team Battle mode, where each player picks five characters to fight on their team



The ten main characters in VF2 have an arsenal of around 60 moves each, from simple kicks and punches to startlingly detailed attacks



Wolf pulls off a twirl and hurl on Sarah (top). Sarah gets it again, this time being brainbusted by her brother Jacky (middle). Lau finishes a heavy pounce on Shun (above)

Continued

misinterpreted for ineptitude though – Shun can pull off some excellent moves, most impressive of which is his handstand kick. Surprisingly, he can walk around on his hands for some time, repeatedly pummelling his opponent in the face with his feet.

Although it's pretty close, *Virtua Fighter 2* isn't quite perfect. Admittedly, there are few problems, but that makes those present all the more annoying. Contact between fighters can be imprecise and uncertain and the player never gets the same feeling of connection that *Tekken* provides. Often, special moves that look as though they are going to do massive damage merely sink into the opponents chest. Sometimes, you don't believe the opponent is feeling the blows, making pulling off a complex move a touch less satisfying.

A lesser problem is jumping which, as in the original, is comparatively slow and has the fighter floating for some time. In the interests of continuity, each character's movement through the air should be as swift as it is on the ground, but this isn't the case. The minimal gravity makes it difficult to use jumps as a tactical element to fights and, as the fighter can execute only one movement while airborne, they are extremely vulnerable. However, Pai can perform a quick backflip to get out of tricky situations, whereas Akira has a leap – complimented by some follow-up attacks – which will get him straight back into the fray. Jumping to escape is not essential.

The sound is possibly the least impressive element. Most of the tunes fail to match the original's and the sound effects, although rather bass-y, lack any really satisfying crunches and cracks.

Of course, the question on everybody's lips will be: is it as good as *Tekken*? As a package, *Tekken* is more invigorating with better music, more characters and harder action. There is also a greater atmosphere of danger and violence in the Namco title, perhaps due to the more threatening characters and the exaggerated sense of



One drawback of VF2's use of playfields is the dreadful 'floating arena' seen after a ringout

physical impact during conflict. When attacks make contact in *Tekken*, the hits can be really felt. *VF2*'s cast is superbly designed but is also a combination of rather pretty and/or humourous fighters, making the action slightly lightweight. This carries over into the moves: at times, they feel hollow and weightless, despite their obvious physical bulk.

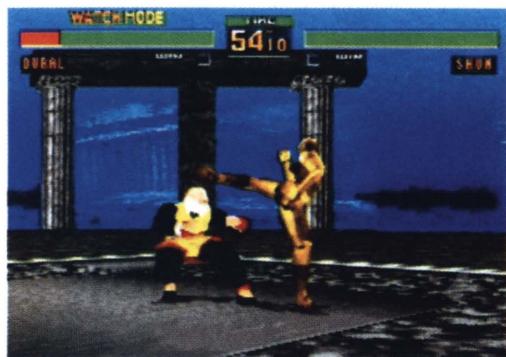
Certainly in some respects, *VF2* is graphically more advanced and impressive than Namco's game. The backgrounds are a definite improvement with complex, well-drawn and interesting hi-res scenery that scales in and out (to obscure the lack of polygons from which its coin-op parent benefited). But the use of a distorted playfield for the actual arenas unfortunately engenders an embarrassing 'floating' effect where the floor hovers above the scenery.

Where *VF2* really overpowers *Tekken* is in its longevity. Given the sheer depth of play, Sega's game has an exceptionally steep learning curve, proven by the fact that the game is still a hit in Japanese arcades a year after release.

In terms of faithfulness to the arcade original, *VF2* gets closer than *Daytona*, *Ridge Racer* or just about anything else. Given that the *VF2* coin-op is still among the most advanced CG hardware in the arcades this is an achievement in itself. Furthermore, the conversion adds features not present in the original. There are several new play modes – including Expert (where the computer learns from the player's moves) and Team Battle (in which two players choose five fighters each to compete against each other). Most important, though, this game is beautiful to look at, excellent fun to play and incredibly addictive.

In many ways, *VF2* is the ultimate technical showcase. It's a game with interesting characters, imaginative structure and a long, long learning curve, that will keep players in front of the screen for months. It's also a game that fully supports each individual player, whatever skill level they are at, and it is so graphically stunning, it's almost as much fun to watch as it is to play.

State of the art.



The secret opponent in *Virtua Fighter 2* is Dural, a gold or silver, highly polygonised female fighter who appears in this strange, Atlantis-like setting. Although Dural is not particularly stunning visually, the swaying, watery background really does impress



Edge rating:

Nine out of ten

Yu Suzuki on Virtua Fighter

Yu Suzuki, the creator of the *Virtua Fighter* series as well as key coin-ops, *Out Run* and *Virtua Fighter*, recently spoke to Edge's sister magazine Next Generation about VF2 and its long awaited coin-op sequel...

NG Which AM2 game are you most proud of?

YS Of all my games, my favourite is *Virtua Fighter 2*. First of all, I think the 3D computer graphics were well received as a new medium of expression. Put another way, I think this added a sense of reality to each punch and kick that wasn't there in previous games.

As well as expressing human motion, it also made it possible to feel the weight of each movement. Also, an element that I personally like is the counter moves. Up until now, the player simply held the guard button and couldn't attack during that time. But in *VF2*, skilful use of the guard button enables you to go on the offensive with a counterattack, and this adds significantly to the depth of the game.

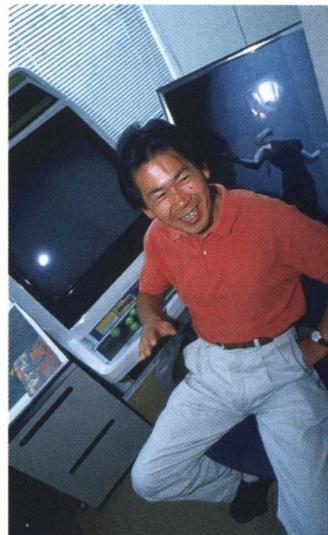
NG What can we expect from *Virtua Fighter 3*?

YS *Virtua Fighter 3* will be a game in which the fighting is closer to actual martial arts, with character motions that are more realistic than either *VF1* or *VF2*.

NG In *Virtua Fighter 1* and *2*, the characters are modelled in 3D and the camera angles are 3D as well, but the action that the user controls takes



The VF2 coin-op differs from the Saturn version by fully realising the 3D backgrounds, rather than using scaling bitmaps to create an illusion of 3D. This 3D bridge is not possible in the Saturn game



place along a 2D plane. Will this change in *Virtua Fighter 3*?

YS The fact that the game is 2D from the players perspective probably won't change in *Virtua Fighter 3*. If the viewpoint changes rapidly during gameplay, the player can't concentrate on the game. I can't say anything for certain, because the final decision hasn't been made, but I think



Lau's disciplined movements more reflect a gymnast than a fighter. His heavy pounce (middle right) is a controlled and drilled move - he slams his feet into his opponents stomach, jumping up and down a couple of times. Other special moves include the waterwheel drop (top right), where he carries his opponent over his shoulders, the cartwheel kick (above) and the sweeping kick (bottom right)



Frenchman Lion's flexible body enables him to pull off some bizarre and spectacular moves. His piggy back attack (above) is a stunning assault from behind, whereas the one-handstand kick (top right) shows Lion's agility in combat. The long range fist thrust (middle right) is indicative of Lion's quick attack strategy. The reaping throw (bottom right) is another example of Lion's strange and supple physique



Continued next page

Hexen



Hexen caters for three types of player-character. Main: the cleric is a good all-rounder, strong yet capable of reasonable magic. Top right: the mage is weakest physically, but is magically adept. All the mage's weapons are long-distance. The fighter is physically superb, but useless with spells

Format: PC

Publisher: GT Interactive

Developer: id/Raven

Price: £44.99

Release: Out now



Hexen's monster count is high and varied. Gas spitting demons and swamp serpents feature highly

Only a few months ago *Heretic*, Raven's previous *Doom*-engined medieval romp, languished unloved in shareware hell. Bland and uninvolved it failed to capture the imagination of either the public or the developers themselves, who aborted the project and returned to the drawing board. The fruit of their current labours, developed with id in an 'executive production' role, is not only a colossal advance over *Heretic*, but *Doom* too. *Hexen* is quite simply the best 3D action game yet to grace our monitors.

Retaining *Heretic*'s sword and sorcery setting, *Hexen* requires you to pulverise and puzzle your way through an array of traditional fantasy scenarios and hostile creatures. You are now, however, afforded the opportunity to cast yourself in one of three roles: a fighter, a cleric, or a mage, each boasting different physical attributes and (more importantly) four different collectable weapons. Furthermore, longevity, as well as variety, is assured because the game plays differently depending on the character selection.

Once underway, the first noticeable thing about *Hexen* is the attention that has been lavished upon its sinister, forbidding appearance. The architectural detail,

spectacular lighting effects (creeping panels of moonlight, glowing ethereal bands that literally chase you down corridors), and the sheer diversity and quality of the textured 3D is a joy to behold and a testament to the strides Raven and id have made with the *Doom* engine. Moreover, the dark beauty of the game environment is packed with imaginative flourishes that greatly add to its credibility: leaves fall off trees, ice shatters and tinkles to the ground, water currents tug at your legs.

Of course all this finery would be for naught if the gameplay didn't cut the mustard but it is in this very department that *Hexen* really triumphs. Spurning the 'level one, level two...' monotony that has ultimately marred many games of this sort, the programmers have employed a 'hub and spoke' design to excellent effect. In any one level, once the correct switches have been pulled, keys found, and the necessary puzzle pieces discovered, you will reveal at least two two-way portals leading to further areas with further portals to be activated and so on. In this way, it is never long before your game area encompasses at least three distinctive environments each with multiple access points to each other, with actions in one

'Prepare for the era of the *Hexen* clone', it is proposed, such is the impact Raven's game has on *Edge*'s reviewer. Well, if the swords'n'sorcery-in-firstperson motif isn't picked up, the game's hub-style approach to maps seems sure to be influential. And if we don't see *The Justifier* again it'll only be to gaming's loss...



In level two the player is thrust into a world full of twisting caverns and mineshafts, all mysteriously connected to an ancient deserted temple that shows signs of macabre death rituals. The attention to detail in *Hexen* is astonishing, ensuring that even the most critical of gamers will be satisfied

inevitably having foreseen or unexpected consequences in another. In all, there are over thirty levels radiating from around eight hubs. That's a lot of game. In fact, paradoxically, the game design's biggest strength is also its only weakness for the simple fact that if you find yourself lacking a particular key you can be faced with a dishearteningly large number of possible (interconnected) locations.

Still, the game areas themselves are richly variegated and never less than stunning to look at so there's always motivation to see more and seldom any resentment at revisiting conquered territories. Mist-shrouded swamps, dank subterranean warrens, ruined Arcadian temples, and creaking caverns of ice, just to name a few. And all populated by an ever-expanding array of foes (there are 15 in all) including double-headed ogres, shape-shifting wizards and weed-hung swamp serpents. A vast improvement over the feeble (nay comical) 'monsters' clogging the corridors of *Heretic* though perhaps a little cartoony for some tastes and still, like their ancestors in *Doom*, bitmapped and pixelating furiously up close. Gentlemen, your polygons please...

Beyond the simple pleasures of agility and brutality, the struggle to navigate and gain mastery over these creatures and their pesky dwellings is lent an extra dimension by a range of artefacts that can be found and stored until appropriate moments. These powers and spells include anything from time-delay bombs to a statue that turns your enemies into squealing piglets. Coupled with the more general enhancements that Raven have made to freedom of movement, like the ability to look up and down and fly, these make the



player's interaction with the game constant and ever-changing.

Thankfully, one thing never changes: the unfettered butchery of your enemies with increasingly powerful and exotic instruments of destruction. Although there are twelve weapons in all, only four are available to any one character class. But rest assured, the gear you do get your hands on (which is not always straightforward – the really serious weapons must be assembled from four hidden components) is pretty awesome: the cleric for example comes to wield a little baby called The Justifier which unleashes a shrieking whorl of wraiths that quite literally tear your adversaries apart.

Hexen is not a revolutionary game. Most of its features have been seen in one form or another before. But its heady brew of searing action, thoughtful structure, and characterful design, wedded to great technical prowess, is a major evolution in what we should expect from 3D games. It's fun, frightening enough to have seasoned *Doom* veterans pitching backwards over their chairs, and deep enough to reward many days of play. Prepare for the era of the *Hexen* clone.



Hexen's zoom in, zoom out, auto-updating map assists for players lost in the spiralling labyrinth. The map retains the 'D&D' feel remarkably well



Top: shredding enemies is easy with hands that fire lightning. Bottom: freezing monsters is great fun

Edge rating:

Nine out of ten

Pulstar

Format: Neo Geo CD

Publisher: SNK

Developer: Aicom

Price: £45

Release: Out now

Up until this point, Neo-Geo CD owners have been mostly served up silver-platter conversions of established Neo-Geo carts, so the arrival of this space-themed shooter is welcome, especially since it's been crafted with such attention to detail. You can't have too much *R-Type*-inspired action...



Level 2 takes place in an embryonic water cavern. The graphics on the level boss are incredible (above)



Level one gently introduces the player to the action, as well as paying homage to *R-Type* by producing almost indistinguishable graphics

Precious few games can genuinely claim to have significantly shaped genres, but Irem's *R-Type* is one that qualifies without question. Now, eight years since the mould-breaking shoot 'em up's coin-op debut, its designers have broken free from Irem's disseminated coin-op division and formed an independent team called Aicom. Their first labour is *Pulstar*, a game which patently reworks many of *R-Type*'s themes to produce an effective mix of nineties presentation and eighties gameplay.

Controlling a ship very much in the style of *R-Type*'s famed R-9 craft, three methods of attack are available. A stab of the fire button looses off a short burst of fire, while holding it down charges a power meter – both methods familiar to the *R-Type* series. The third attack is something brand



new, though: rapidly press the fire button and the power meter charges in reverse – which, depending on the weapon currently in possession, offers effects such as wider shot coverage and even force-field-type beams



Level 3 kicks off with impressive lava flames (top). The giant ship which follows is another patent *R-Type* homage (middle and above)

which encompass the craft. Couple these with the use of a second fire button – which, among other things, locks the direction of fire of any multiples in tow – and a remarkable range of attacks are possible. Sadly, similar advances haven't been made with weapon pods, which remain fixed to the front of the ship. The potential for *R-Type*'s detachable drone pod concept – where it is fired into groups of enemies or attached to the front or rear of the craft – is exciting and it's a mystery why Aicom didn't explore it with equal fervour.

But if the game updates *R-Type*'s gameplay in a rather half-baked fashion, it more than compensates with its graphics, which are the best yet seen on SNK's five-year-old console. Adopting an unusual approach, *Pulstar* uses traditionally created sprites and backdrops plus a selection whose origins lie with graphics rendering workstations. From the smallest to the largest of enemy characters the evidence is clear, with a crisp, clean look to all its



The set piece which closes level 4 makes excellent use of SNK's hardware: an egg bursts to reveal a snake which transforms into a giant crab-like boss

elements, an incredible level of detail and enormous bosses which call upon a breathtaking range of animation frames. And unlike Atari's *Trevor McFur In Crescent Galaxy*, *Pulstar* marries the two styles in an uncannily convincing style.

With game design ostensibly that of the eighties, *Pulstar* continually asks the player to learn the aliens' attack patterns. Whether it's a giant segmented creature attacking from the rear of the screen or an enemy suddenly firing from a seemingly innocent orifice, if the player doesn't know they're coming they have little more than good fortune to cling to in getting through unscathed. Frustrating maybe, but it's something that will be transcribed by hardened coin-op fans simply as classic gameplay. And unlike both *Philosoma* and *Rapid Reload* on the PlayStation, which ape ageing themes to distinctly limited levels of success, *Pulstar* is the bona fide article; the work of a team who cooperated with the likes of Konami – whose *Gradius/Nemesis* series garnered similar acclaim to *R-Type* – in fashioning the template which would be followed by countless game designers in subsequent years.

The game is tough – if admittedly a little short, levels-wise – and packed to bursting with action, serving as an excellent reminder of how exciting such a simple concept can be when executed with copious flair and sharp attention to detail. Its structure makes the arcade its ideal home, but *Pulstar* will equally find favour with a console audience having suffered a painful dearth of decent shoot 'em ups in recent years.

Edge rating:

Eight out of ten



Level 5's otherworldly flora theme is in stark contrast to previous stages

Newsgroups

Usenet is a world-wide communication network. It is split into thousands of newsgroups each of which caters for a specific interest. Newsgroups work in a similar way to email except that when a message is posted to a newsgroup, it is not being read by just one person, but a potential audience of millions.

There are two categories of thought concerning newsgroups in general: first, that they are the last bastion of

commercial-free activity on the Internet, and should therefore be applauded. Secondly that they are the domain of the sad, the obsessive and the seemingly perverted and therefore contain nothing of any worth whatsoever.

To discover which of these categories videogame discussion groups would fit into, **Edge** looked at several dealing specifically with the main videogame companies at the moment: Sony, Sega, Nintendo and 3DO. **Edge** also posted a message on the newsgroups asking a few questions about the quality of debate available and about what newsgroups have to offer the Internet and the videogames industry itself.

The first thing to note about videogame newsgroups is that (as with most other areas of Usenet) all human life is represented there. Twelve year olds with SNESs, programmers, advertising execs, hackers, belligerent adolescents – whatever the debated topic may be, it is as enthusiastically approached by immature brats as it is by older and wiser videogames players. Take the subject of hardware: there is some genuinely intelligent discussion in this area, focusing on specific machine features and looking at their strengths and weaknesses. For example, in the week that **Edge** studied the newsgroups in depth, there was much debate concerning the Ultra 64, including, for example, comparisons between CDs and cartridges as storage media (with cartridge storage targeted as a major U64 flaw). There was no, 'CDs are shit, cartridges rule' type inanity, instead some useful, if somewhat technical, input.

The level of analysis on offer may not be to everyone's taste, but at least it is constructive and informative. Unfortunately though, and predictably, debate concerning hardware is easily dominated by puerile 'my machine is better than yours' nonsense which is both immature and achingly dull.

Software debate can suffer from the same kind of nonsensical rivalry. Michael Ziniti, a subscriber from Harvard university, told **Edge**, 'A large percentage of posts to the newsgroups are from people fighting over VF2: A hates it for this reason or that, B flames A because A obviously doesn't know what he's talking about, and then C says 'Tekken is better!' Then we simply start over with the same argument again'. The week that **Edge** looked at the newsgroups, there were dozens of postings which said little more than, 'Virtua Fighter 2 is great and Tekken is awful' and vice versa.

Nevertheless, it is perhaps in the software debate that the newsgroups excel. Gaming hints, for example, make up a sizable portion of posted material, and there is some useful info out there (including loads of special moves for VF2 that will take months to surface in conventional printed magazines). The reviews are often little more than stunted vignettes along the lines of, 'Destruction Derby is great. The music is great and the two player mode is wicked' – it's hardly in-depth analysis, but, for those who are considering making a purchase, the reviews do offer a series of knee-jerk reactions which can steer a potential buyer away from real dogs (if everyone on the newsgroup writes, 'this game stinks' there is a good chance that it does, in fact, stink).

Another positive element of the reviews is the speed at which they appear. Anyone that buys a copy of a new game can play it and have a review on a newsgroup in a matter of hours. Conventional printed media just cannot compete with this speed of communication.

In many ways though, newsgroups fulfil a similar role to videogame magazines aimed at younger players. Kids boast about high scores, ask for games advice, offer to sell used hardware and software and generally bicker over which platform is the best and why. Added to this, however, is some stimulating debate and the chance to get hardware and software advice from some incredibly knowledgeable people.

But don't make the mistake of thinking that the newsgroups can be likened to a communal Utopia where accurate information is circulated between friendly people. →

Forums dedicated to videogames can be found littered across the net. Edge found both intelligent chat and text-based fisticuffs

We don't yet know precisely how internet communication will change the way videogamers talk with one another in the future, but a dip into the world of newsgroups offers indications that, unless humankind changes any time soon, measured, intelligent debate isn't going to be the prevailing format.

EDGE



To access Usenet you will need the correct newsreader software. See **.net magazine**, or one of its **.net guides**, for more information. For online info about Usenet see:

<http://www.smartpages.com/bnfga>

Site: Videogames discussion

Address: rec.games.video

Format: Newsgroup, via a newsreader

Origin: Transglobal

Researched...

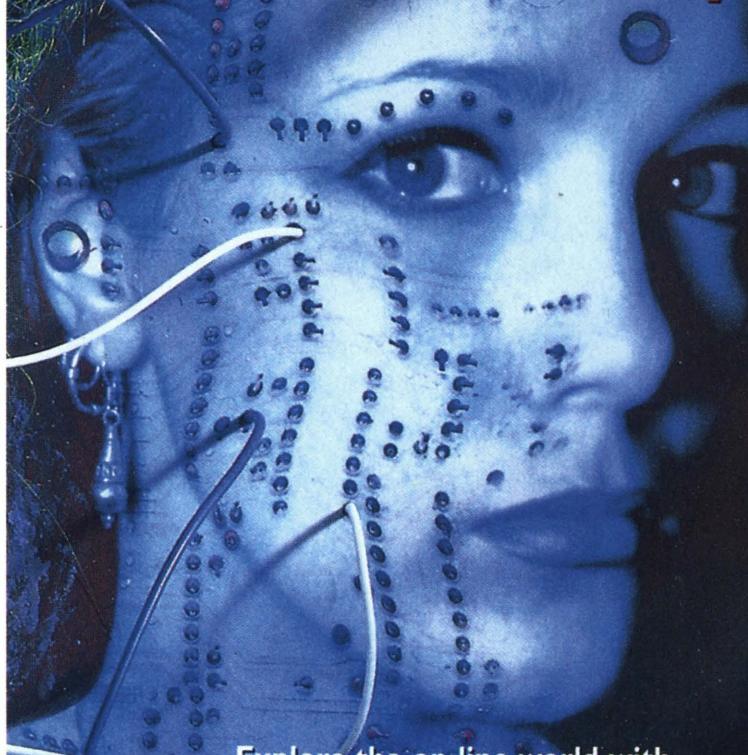
Newsgroups

rec.games.video.nintendo
rec.games.video.sony
rec.games.video.sega
rec.games.video.3do
rec.games.video.advocacy

For a list of newsgroups dealing specifically with PC gaming advice see Jet's Game Page: <http://www.aloha.com/~jet/games>

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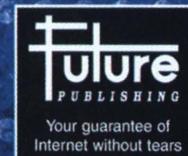
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→ There is a flip side. If scrupulous facts can be circulated world-wide in a matter of just a few hours, so can misleading and inaccurate speculation. Each newsgroup is full of postings which correct the information to be found in earlier postings which were, themselves, often just corrections to even earlier postings.

Essentially, when you open a message, or post something yourself, you never quite know what you're letting yourself in for. Many subscribers are full of mindless vitriol, which often leads to the flaming of fellow participants and general unpleasantness. It seems that many are so passionate about their opinions they are prepared to perform acts of electronic vandalism to make a point.

But how important are these newsgroups in the general scheme of things? Do they have any effect on the videogames industry as a whole? Clearly many subscribers feel they do. In their

Usenet chat

Here is an example of a typical Usenet conversation, titled Ultra 64 Bullshit, that Edge discovered while researching this page...

Oooh yeah. Love those simulators and driving games. Must be great to have a system with nothing but sports, simulators and racing games.

Umm... what else is there? I guess if you like to run around looking like a dragon in a go-kart, the Ultra64 will provide a little more variety, but real men usually prefer sports, simulators and racing games. But then again, everyone is different, this is again a mere opinion. :)

Indeed. And then you will see PSX start to die... along with Sega.

Don't count your Yoshi's before they're hatched. If you think the Ultra 64 can compete with a CD-based machine price-wise, then you have another thing coming. Nobody likes to spend over \$200 on a machine and then have to turn around and buy \$100 games, or an expensive add-on storage medium for it. At least not in the good 'ol USA. Look out Neo-Geo.

Believe what you will, but until this God of a machine comes out, we are all just spinning our wheels. Wait until the shit hits the fan before we start tossing it.

Hardly Tarantino, is it?

emails to Edge, many refer to Any Channel's game *PO'ed* (see page 80) which was apparently re-designed after Phil Lam (writer and marketing manager at Any Channel) studied ideas for the game that were discussed on *rec.games.video.3DO*. Similarly, an enthusiastic subscriber, Dave Haupert, goes as far as to assert:

I don't think Way of the Warrior would have sold so many games if it weren't for the programmers and testers befriending the netters and getting enough respect from the fellow news readers to buy the game first without first trying it

It seems, then, there is a real relationship between newsgroup subscribers and videogame companies: 3DO even employ a member of staff – Neal Robison – to keep an active presence on Usenet. Shawn Rader puts it like this:

I feel newsgroups are the single most important segment of the Internet. The web is all flash, and little substance. Usenet, on the other hand, allows people to express their ideas and thoughts to a vast number of people, creating what is arguably, the largest communication forum in history...

.....



Edge

on the net: <http://www.futurenet.co.uk>

Shiny's Dave Perry is convinced Nintendo "is going to kick everyone's butt" with its N64, even though question marks still obscure parts of the picture. Here's where we attempt to get the answers from Nintendo and its partners, and discover, among other things, why Mario creator Shigeru Miyamoto's stomach is growing...



Nintendo's UltraMen

Developers lust after the specifications. Publishers baulk at the

potential costs. Gamesplayers want it – no matter what. **Edge**

interrogates the key players behind Nintendo's 64bit dream

Photography: Jude Edginton

Ultramen

EDGE magazine February 1996

エッジ
ミーリング
カルト
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Continued next page

Ultramen

From the very beginning industry-insiders have questioned the ability of many of Nintendo's 'Dream Team' partners to produce quality interactive software for home use. Although there was little doubt that the games shown at Shoshinkai were legitimate, the fact that they weren't available to play was a big disappointment – and proof to the cynics that the 'Dream Team' may not be all Nintendo would have you believe: outfits such as Angel Studios and Paradigm make great pre-rendered graphic sequences and flight simulators costing tens of thousands of dollars, but they have never had to squeeze interaction out of a \$250 home gamebox before. Their U64 projects may look great, but how will they actually play? Do these teams truly understand and revere interaction, or is it just something that will be added at the last minute? With only three seconds of videotaped, non-interactive game footage on display, one needn't be cynical to work out why these games weren't available for testing.

From a hardware perspective, the fact that some of the Ultra 64's more heralded hardware graphic features (tri-linear mapped interpolation and anti-aliasing) weren't being utilised in some game demos at Shoshinkai raised other doubts about Nintendo's ability to meet its promises. According to some of the more technically savvy delegates, *Super Mario 64* and a few other titles didn't employ such features.

There are three possible explanations: either the features aren't working yet, turning the features on resulted in an unacceptable degree of game slowdown, or (and this seems to be the favourite theory) game designers simply haven't had enough time to get to grips with the technology. Either way, it doesn't bode well for a games system that was originally scheduled for a Christmas 1995 launch.

However, despite these niggles the downbeat mood of delegates gradually gave way to a more healthy and upbeat prognosis of Ultra 64 (or rather, Nintendo 64 as it is badged in Japan) after most had played Nintendo's flagship title. Dave Perry, head of Shiny Entertainment and creator of *Earthworm Jim* typified the mood of those witnessing Ultra 64 for the first time: 'When everyone first saw it running they said, 'Oh okay'. But then, once they had played it, they said 'Hang on, that's really cool.' Sure, some people felt it hadn't lived up to the hype that Nintendo put around. First of all you think 'oh it's just another 3D console and it looks just like the PlayStation'. But, for me, I felt that

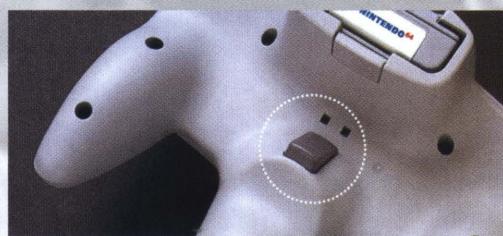
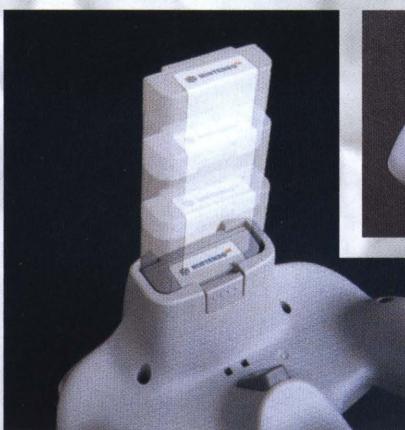


it looked like the PlayStation in hi-res, which adds a lot to picture quality. That's incredibly important.'

So can Nintendo capitalise on Ultra 64's power? Perry has little doubt: 'Nintendo is going to kick everyone's butt, certainly in Japan. I asked some friends of mine how much they would spend to own an Ultra 64 right there and then and they said \$4,000 of their own money and

\$10,000 of company money! The fact that they wanted one so bad was a good sign. When it comes to the US it's going to sell like crazy even though the [\$90] games are very expensive.'

Perry was also very excited about Ultra 64 as a games creator. 'Obviously the controller is the big special move that they have gone for. It definitely changes things and it's wonderful. It allows you, when



Besides the analog thumb stick, the N64 controller includes other unique features such as a trigger and small memory cards similar to those for the PlayStation. This will negate battery-backed RAM included in cartridges

driving in a racing game for example, to lean into the corners so much more easily than having to keep tapping a button.'

Jez San, Managing Director of Argonaut and creator of *Star Fox*, agrees. 'The joystick is unusual looking but I like the controls. The thumb control feels nice and strong and also sensitive.' He also agrees that despite the lack of games available for hands-on testing, what he saw confirmed Nintendo's claim that Ultra 64 truly offers the performance leap that Nintendo claims. 'Graphic technology-wise it's a step up from the PlayStation and Saturn in that it's got perspective-correct texturing and tri-linear interpolation. Although the *Mario* game used only bi-linear interpolation [a less-powerful mode] it looked quite good. It meant that they could use very small textures and have them zoomed up really big. The PlayStation and Saturn don't have these features.'

San did, however, concede that data storage is a big problem and until Nintendo actually presents software houses with some genuine alternative it could make development difficult. 'It's going to be tough to fit [Ultra 64] games onto 8Mb cartridges because when you start using 3D graphics with a lot of polygons and a lot of texture maps it all adds up – and soon you find that 8Mb isn't enough.'



In Japan, Nintendo will make a range of N64 controllers available in different colours, mimicking its efforts with the Game Boy

Nintendo argues that proprietary decompression technology will ease the memory problem (it claims that while it can't match the 650Mb capacity of a CD, it can compress 16Mb onto a 4Mb, 32Mbit, cartridge). However, as far as most game producers are concerned, the amount of data that Nintendo's cartridges can hold is secondary to the problem of how much the cartridges will cost. A PlayStation or Saturn CD costs less than \$10 to manufacture – including license fee. It is estimated that producing an Ultra 64 cartridge will cost at least \$30. And with many publishers having suffered

tremendous losses after being stuck with large volumes of expensive Super NES and Genesis cartridges after the collapse of the 16bit market, few are eager to return to the bad old days of cartridge manufacturing – especially after gearing up their CD manufacturing business for two years.

So is Ultra 64 the quantum leap in videogame technology that Nintendo promised? Has it the potential to destroy PlayStation and Saturn? Realistically, it's too early to tell. Three main questions remained to be answered: Can Nintendo and its 'Dream Team' of game developers complete enough killer games in time to accompany the hardware's launch? In the



NCL chairman Hiroshi Yamauchi made a forthright speech but its duration claimed the odd casualty (below left)

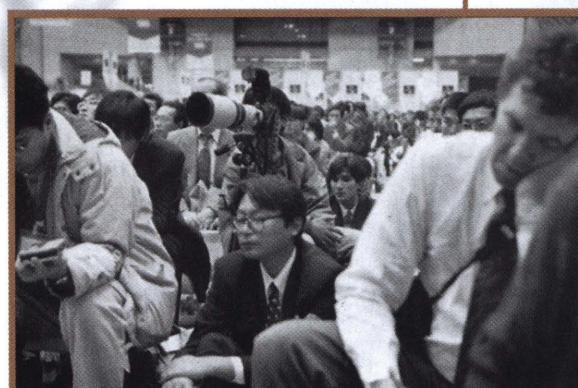
A chairman on the offensive

Mr Yamauchi's keynote speech centred around the importance of emphasising quality over quantity. Citing videogaming history he urged the games industry to learn from its mistakes, in particular, the development of too many poor-quality games. He reminded his audience of the collapse of the videogame industry in the early eighties attributing this to the fact that 'videogames were not fun.' Of course, Mr Yamauchi's recounting of this videogaming fable sets

the scene perfectly for a Nintendo-to-the-rescue climax, complete with gleaming white charger and rescued princess. But Shoshinkai is his show and he can tell the story how he likes. The fact is that there are valuable lessons to be learned from the 1980s, and that few would-be teachers have the track record or experience of Nintendo's chairman.

Mr Yamauchi continued to berate software companies' attitude to producing software, particularly those that have developed numerous titles with little concern for quality: 'They will try to develop as many titles as possible so at least one of them will be a big hit in the market.' His conclusion? 'The users will simply reject these third-rate software titles.'

His point was that unless the gaming industry starts tightening up standards and reducing the number of games produced, then it's heading for a crash that would make the early eighties look like a walk in the park. He's right, of course. What remains questionable is whether Nintendo's entry to an already-overcrowded marketplace will sort out the problem once and for all or merely add to it. And the answer to that question won't be known until next April.



absence of a finalised 'bulky storage' software medium, can Nintendo persuade game developers to return to expensive cartridge publishing? And will the number and breadth of titles available be enough to persuade gamers to abandon the library of great games that, by U64's launch, will be available for PlayStation and Saturn?

So, Ultra 64's unveiling at Shoshinkai posed more questions than it answered. First, everyone knew that it would all come down to Mario in the end. Shigeru Miyamoto's moustachioed plumber was the driving force behind NES and Super NES, and will be for Ultra 64 also. Super *Mario* 64 will undoubtedly be a great game but few had anticipated the extent to which Ultra 64 would rely on just this one game. At this stage it's difficult to tell if Mr Yamauchi's refusal to show anything but *Super Mario* 64 is testament to the scale of Miyamoto's achievement and the brilliance of Mario's 3D debut, or whether it says more about the lack of anything else to shout about. Only time will tell.



Silicon Graphics designed and engineered the internals of the Ultra 64. The programme, inaugurated in August 1993 and code-named 'Project Reality', is the first time the Californian company has ever had to produce a machine for home use. To successfully develop graphics workstations costing hundreds of thousands of dollars is quite an achievement, but to develop the innards of a box that Nintendo swears will sell for 'less than \$250' is a completely different task. How has the dream of bringing Jurassic Park's special effects to the home been sacrificed along the way?

Edge met with the general manager of SGI's consumer electronic marketing during the Shoshinkai show.

Edge So was it SGI's idea to present this technology to a videogame company, or was SGI approached from outside?

Silicon Graphics

GZ Jim Clark – who was the chairman of Silicon Graphics back then – took this technology and really pursued the idea of working with the leading game manufacturers.

Edge What did SGI and Nintendo agree should be the technology's major features?

GZ We wanted to get the Reality Engine look and the feel, in terms of the quality of the polygons and the pixels, within a high performance machine. There's a lot of things that happen when people start engineering. It's easy to end up with a machine that can either do the graphics features, or has the performance, but the real challenge is creating a machine that does them both well. That way you don't suffer certain optimisations – where your features might work but all of a sudden you get this crummy performance, or you have good performance but low-quality features.

Edge So what else did you offer Nintendo, in terms of SGI's expertise in graphics?

GZ As well as designing the hardware, we supplied the software emulation system. Basically, we had Ultra 64 microcode running on an Onyx Reality Engine back in July 1994, so someone could sit down and start building a game. And that's what Mr Miyamoto did with *Super Mario 64*. He started building the game on the Onyx Reality Engine with Nintendo Ultra 64 software emulation system over a year ago.



Edge So how does Ultra 64 compare, in terms of power, to the original SGI Reality Engine from which it was derived?

GZ From a consumer's perspective, I don't think gamers will be able to tell the difference. If you ask someone on the Reality Engine team whether it's the same thing, they'll say, 'Of course not! The reality engine does blah blah blah.'

But since an NTSC TV screen has only a quarter of the pixels compared to a high-end computer monitor, Ultra 64 has an equivalent amount of performance. So, although in actual fact Ultra 64 has probably only a quarter of Reality Engine's performance (we haven't actually done direct competitive bench tests), we only have a quarter of the screen to fill. So, in terms of polygon count and pixel count, Ultra 64 has the same performance as Reality Engine. Ten years ago the rendering performance of the Ultra 64 would have only been possible on a \$14 million flight simulator.

Edge What level of secrecy did you have to implement internally within SGI?

GZ There was an unbelievable amount of secrecy. It was challenging because at SGI our culture is a really open one and engineering groups from all over talk to other groups to see what everyone is doing. Because we are working with Nintendo in this area and because there is such potential for competition to, like, see

what was going on, we had to deliberately cut down the level of communication internally. No-one knew where the lab was internally – we had a whole lab full of Ultra 64 stuff and 70 people working on the CPU alone – there was a big *Donkey Kong Country* poster on the window so no-one could see in!

Edge What about 3DO's M2? Until Matsushita makes an official announcement about its plans for the M2 technology, everything is pure conjecture. But if initial specs are to be believed, M2 is of comparable performance, if not greater, than Ultra 64. Do you feel M2 is a threat?

GZ I can tell you a couple things. One is that we receive a constant, steady rate of resumes from the 3DO M2 team which tells me that things probably aren't so great over there. The second thing is that, whereas they might have the right specs on paper, I don't believe they're going to hit them. This is based on conversations I've had with people who worked on that team.

Edge Over the coming years as Ultra 64's battle with PlayStation, Saturn and maybe M2 is played out, which of its strengths and features will prove itself to be Ultra 64's big trump card?

GZ My gut feeling is that Ultra 64's competitive advantage will be the custom graphic features. I think gamers will really react to the mix we have of polygon rate and pixel fill rate, with high-quality pixels. So I think we got the mix right. And my gut feeling is that Sony probably should have got higher-quality pixels. It's similar to engineering a car, which is getting the right

mix of chassis design, engine, transmission, and also the driver's interface, which is the cockpit. It's just a question of getting the right mix.

Edge Are you surprised that Nintendo are managing to keep the price of the Ultra 64 competitive with other 32bit systems?

GZ What Nintendo said here at Shoshinkai is that they'll definitely be able to bring it to market at or under \$250. But the important thing to remember is that they don't have to pay for the CD-ROM mechanism [Ultra 64 doesn't have one] or RAM [for the data to be loaded into].

The biggest sales of videogame systems occur between \$100 and \$150 in the US – that's the impulse-buying range. My belief is that it'll be easier for Nintendo to get down into that range by continuously shrinking the chip – which they did with Super NES and NES before – than it will be for Sony or Sega, because you can't shrink a CD-ROM mechanism. That's where I think Nintendo will accelerate their penetration over the next two or three years.

Edge The PlayStation is criticised for restricting developers to a fairly rigid Operating System. At the other extreme, developing for the Saturn is often described as confusing and unnecessarily complicated. How are the initial developers reacting to Ultra 64?

GZ We provide Alias and MultiGen tools that are used to create 3D models and texture maps, and people can use other tools as well if they want. There's a full set of converters available that convert to the Ultra 64 data formats, to provide all the low-level compilation and linkage routines. We don't supply an Operating System, because an OS is kind of deadly in a videogame system, since it chews up a lot of performance.

Instead, we supply a very low-level microcode environment that allows developers to access the features as they like.

Edge Nintendo claims CD-ROMs are unsuitable for games. But data loaded from a CD behaves just like cartridge ROM.

GZ I agree. The problem is, however, that you have to have enough RAM...

Edge Which is expensive...

GZ I think that's the problem. If you don't have enough RAM, the issue you start

getting into is a very complex virtual paging system from CD-ROM into memory. When you have a small amount of memory, the low level OS you need to do virtual paging can get kind of complex.

Edge And Nintendo doesn't feel it can afford to include enough RAM in Ultra 64 to avoid these problems?

GZ That's correct. Interestingly, the cost curve on RAM is pretty flat for the next three or four years. Demand is going to meet supply, and – from what I hear – the cost of RAM is actually going to go up. In the future I think there are going to be three staple requirements in the world: bread, water and RAM [smiles].

Edge Do you think the games shown at Shoshinkai gave a fair representation of Ultra 64's power?

GZ That's difficult to answer because I don't know how much better games produced in the future will be. Looking back historically, we see that three or four years into a system's life, people are producing stuff no-one thought was possible. It's all down to the ingenuity of the game programmers who know how to take advantage of every electron in the box.

Edge It did look great, but it wasn't utilising all of the graphic features we talked about. Why was that?

GZ The textures were bilinearly interpolated, they weren't trilinearly interpolated – because mip-mapping wasn't turned on in that demo. And anti-aliasing

make those extra levels look better if you spend more time on them – and presumably the developers of the games on show didn't have that time.

Edge None of the third party games were available for hands-on testing, and even the stuff shown on videotape didn't look that great. How do you account for that?

GZ I think that reflects the fact that developers really need more time on the hardware to take advantage of it. Some of the stuff on the videotape had really been in development for only a few months.

Edge How do you think the first-time game developers have done with their Ultra 64 projects?

GZ It seems that different developers get up to speed on the machine in varying time frames. There are some people that came purely from the world of 2D games who knew how to make stuff look great in 3D. And there's other people that had tons of experience in 3D, but their stuff didn't look that good. I think that the people who have experience in building good games, versus really good 3D demos, can get up to speed really quickly, because they know what they're aiming for.

Edge Were you surprised by any of the titles you saw at the show?

GZ Yeah actually, I had never seen a couple of the titles before the show. I'd seen Super Mario stuff being done over the last four months – they sent us binaries just to keep the engineering team excited – but I'd never seen *Zelda* before. I asked

Takeda-san [general manager of Nintendo's R&D3 in charge of the N64] if the footage shown had actually come directly from the box and he said yes. It was rendered in realtime

which was really unbelievable.

We receive a constant, steady

rate of CVs from the M2 team

which tells me things probably

aren't going so great over there

wasn't turned on. I don't know why, I think they just wanted to have a stable demo to show people. But these features definitely work, because we have demos here with that stuff running fine. I think people completed the non-anti-aliasing, non-mip-mapping versions first, and so they chose to show these, which they knew would run okay. Also, the problem with mip-mapping is that you have to generate multiple levels of texture maps. There's a little bit extra work to make sure you generate the correct levels. You can always

Edge So what's next for SGI after finishing the Ultra 64 project?

GZ I think we're just continuing to work with Nintendo to get the system into manufacturing and then fine-tuning that process. With chip development there's always the quest to get higher and higher yield. We've always got to try and find ways to not only develop new stuff, but ways to make the existing stuff cheaper and more streamlined. That should keep us busy for the moment.

Ultramen



Shigeru Miyamoto

Shigeru Miyamoto is exhausted. He has just spent countless late nights preparing for the debut of Nintendo's new games machine, and he has been plagued by TV crews and journalists all day long at the gigantic Makuhari Messe exhibition centre one hour from central Tokyo.

As the most revered game creator of all time and eminent catalyst in the development of key Ultra 64 titles he is arguably one of the most instrumental figures in the evolution of the Ultra 64. Shigeru Miyamoto's role in the console's development process has been one of quality assurance on the software side. As well as acting as

development director on the first wave of internal-developed N64 projects, Miyamoto-san has also been



The proposed 'bulky drive' add-on is planned for release at the same time as Miyamoto's *Zelda 64* in late 96 (realtime demo, above)

overseeing the work of companies such as Paradigm Simulation and Angel Studios in the States. Having so many areas of interest that constantly demand his attention means he is always under pressure. **Edge** caught up with him at a cocktail party reception organised by

Nintendo Of America directly after the Shoshinkai exhibition.

Edge Personally speaking, what was the most exciting thing for you today?

SM It must have been all the interviews (laughs)... I can't really single out one thing but I suppose I'm happy that such an important day went well. I was very concerned over what everyone would think about there only being one playable game at the show instead of the ten we promised. Basically, we made a decision at

Continued

the last minute to give people the chance to play one game for a long time instead of having lots of different games that people would have only had a short time on. I believe everybody at least had a chance of playing the new Mario.

Edge Do you think the titles shown today are a fair representation of Nintendo⁶⁴'s abilities?
SM I think only 50% of the machine's full capacity was revealed today. More great things can be done but at least we could show what Nintendo⁶⁴ can do.

Edge Which of the games shown are you personally involved with?
SM As you have seen, we have only shown Nintendo-developed games and games that are essentially products of our 'second parties'. When it comes to Nintendo's games such as Super Mario 64, Kirby Bowl, Wave Race, Zelda, Star Fox and Mario Kart, I'm involved in their development 100%. As for games such as Paradigm Simulation's Pilotwings and Angel Studios' Buggie Boogie, my involvement has been on a lesser scale.



Edge Is this the most number of games you've ever had to oversee?

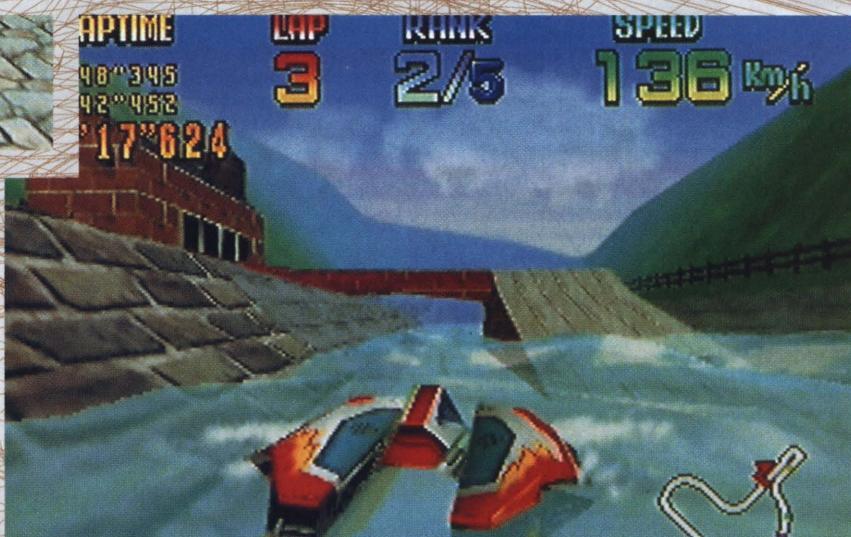
SM Not really. I've always taken charge of about ten games, so this situation isn't that different.

Edge We've heard in order to meet the April launch Nintendo⁶⁴ game code must be completed by at least February. Are you going to have enough time?

SM Well, there are some administrative things we can do to ensure that it doesn't have to be quite as early as February. But, yes, all I can say is that I'm pretty busy right now! In the case of Super Mario 64, I am actually doing the job of director rather

Having so many areas of interest that constantly demand his attention means Mr Miyamoto is always under pressure

Continued on page



Pure Miyamoto magic from top, clockwise: *Mario Kart 64* is currently just 20% complete and runs in hi-res. *Wave Race*, while lacking in over-the-shoulder appeal at this early stage, should hopefully fill the void that has been *F-Zero 2*. *Super Mario 64* is, of course a work of genius...

Ultramen

than supervising everything as producer. So, while acting as producer for new 16bit games, I'm also doing the job of director on *Super Mario 64*. Basically, the thing I need most at the moment is time – I'm very worried about time!

Edge When exactly did work start on the new *Mario* game?

SM *Super Mario 64* was the first game we started, and we began work about one and a half years ago. Actually we started working on an experimental *Super Mario 64* system almost five years ago based around the Super FX chip. Unfortunately though, this didn't come to fruition so it's only been about eighteen months since we put the *Mario* team on the project and started using the Onyx development workstations. It's possibly the shortest development schedule yet for a *Super Mario* game.

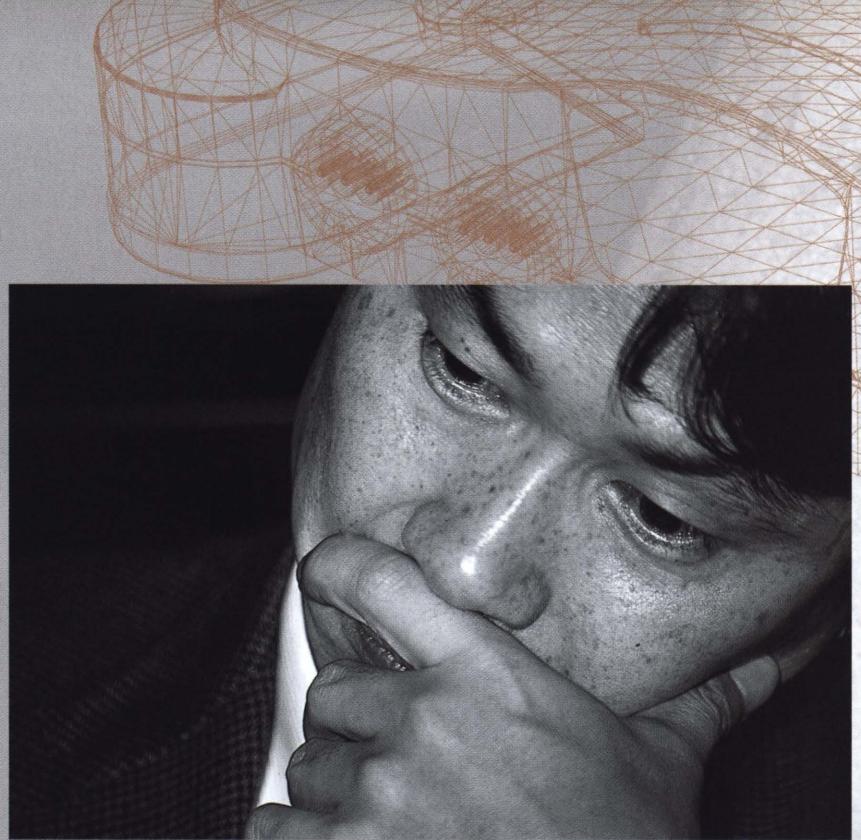
Edge It seems some of the software shown today was not using all of the Nintendo⁶⁴ features, for example the mip-mapping which we heard was turned off in the *Mario* game...

SM If I can just talk about the *Mario* game, I think if you carefully watch every little thing in the game you can see some of these techniques being used, but concerning the other games, some developers are not yet using such effects. Actually, these technologies that are hyped in the specifications, are something that you can incorporate at the very last moment of the development schedule.

Edge *Yoshi's Island* is the pinnacle of your work on 16bit with the *Mario* series. Do you feel that, graphics aside, this is a better game, than *Super Mario 64*?

SM I think *Yoshi's Island* is a game that emphasises the fun that can be had in 16bit games. But there are always limitations in making something intensified. As a creator I wanted to make something new and to widen the experience as much as possible. I am not talking only about adding a 3D aspect, but I am talking about really improving the gameplay. It is this new dimension of gameplay I want to include in *Super Mario 64*.

Edge With the exception of *Super Mario Kart*, it is the first time *Mario* will be appearing in a 3D world. How much work and thought went into how the 3D world should look? Should it be similar to the 8bit and 16bit worlds or should it be different?

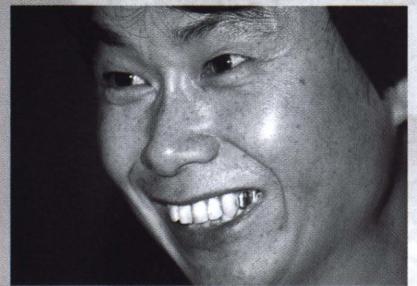


Nintendo's game guru has a passion for creating original videogames. Without doubt, he is the secret behind Nintendo's success

SM It's very difficult to compare between the existing *Super Mario* games and *Super Mario 64*. We must consider them as two different kinds of games. Personally, I wanted to make a game that looks like a 3D interactive cartoon. I wanted to create a small garden where *Mario* can meet realtime 3D characters and the player would be able to move the character with the controller, but like in a real cartoon.

Edge In terms of gameplay, will players with experience of previous *Mario* games have an advantage over *Mario* novices?

SM Frankly speaking, I wanted to make a game that every kind of player could play so there would be no advantage for players with experience. However, I think those



Edge Just how revolutionary do you think this game controller is? Is it going to make a big change to the way games are played?

SM From a creative point of view, in the past there have been lots of games that could not have been developed because of a lack of analog control. In fact, the consumer has often had to buy custom controllers as accessories, so companies have been afraid of supporting such peripherals. We've given a lot of thought to this controller and developers now have the opportunity to create a whole new entertainment field.

We've given a lot of thought to

the controller... developers now

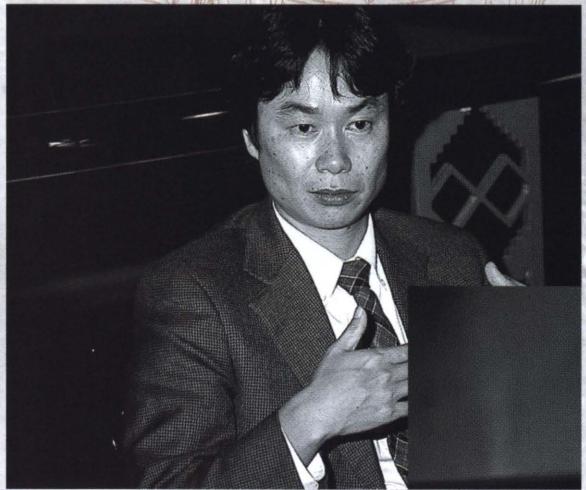
have the opportunity to create

a whole new entertainment field

familiar with traditional digital controls may have some trouble adjusting to the new analogue control stick, but of course, once they do they'll find it a much more rewarding experience. I expect that first-time *Mario* players will take to the analog joystick quicker than those used to traditional controls.

Edge It has taken around 15 to 20 years for perfect 2D gameplay to be realised, and around ten years to perfect *Mario's* gameplay in 2D as we've seen in *Yoshi's Island*. How long do you think it will take to reach that level of perfection in a true 3D world?

SM It has already taken ten years to arrive to the present level of 3D with the personal computer, and we are still not doing it well. Because of the large number of pseudo 3D games we've seen, I don't think we're that far from reaching the same level of gameplay depth in a 3D world such as *Super Mario 64*. In fact we've already reached a high level of gameplay in the version shown here today and closer to



the launch you'll see this aspect of the game shine through even more.

Edge Of all the Ultra 64 games you're currently involved with, which one are you most excited about?

SM Because I'm the director of *Super Mario 64* this is obviously the project I'm involved with the most and consequently the one I'm most excited about. I'm also interested in the outcome of *Pilotwings 64* and I've got high hopes for *Wave Race* which I think could be really exciting.

Edge This seems like an attempt to reincarnate *F-Zero* on Nintendo⁶⁴...

SM Seemingly, yes, you can see the design is similar to *F-Zero* but I want to introduce new kinds of vehicles such as waterbikes and also a very undulating terrain with lots of jumps.

Edge Mario is perhaps the oldest game character. Do you think he is still popular or do you think he needs to evolve and change?

SM Well, do you want me make a completely new character? (laughs)

Edge Alright then, are you excited about the potential of a 64bit *Zelda*?

SM Yes very much. Personally, I think *Zelda* should have been in 3D since the beginning. And although I shouldn't talk

about it right now, I'm very interested in the potential of the writable storage device which should give the players more game time and even greater levels of gameplay depth.

Edge What do you think of games on the Saturn and Playstation?

SM Frankly, some of the games are really good. But when I say good I mean they are usually just good conversions of arcade games. These developers are simply following a project set by hardware companies. To my eyes, much of the other software looks poor and many of these games seem experimental.

that the four-player option is something that will be used a lot?

SM We've decided to push this aspect because for the first time we have a machine with a fast enough CPU to handle four independent screens at speed. That's why we decided to include four joypad ports on the machine itself.

Edge We've noticed you've stopped smoking. Is this because you simply don't have the time anymore?

SM No, it's because I have to work with Americans! (laughs)

Edge So what vices have you taken up instead?

SM I've been eating lots of sweets which explains why I've acquired such an enormous... (points to stomach)!



Edge Another aspect of Nintendo⁶⁴ that a lot of people are talking about is the potential for networked games. Does this concept interest you?

SM Everybody is excited about the future and there are many different ways for us to explore. Networking is the kind of thing we would like to work on and the Nintendo⁶⁴ has some special extension ports created for this possibility. However, I think it would be better to talk about it when we have sold three million Nintendo⁶⁴ units!

Edge The only games we saw today that made use of the four joypad inputs were *Kirby Bowl 64* and *Mario Kart-R*. Do you feel

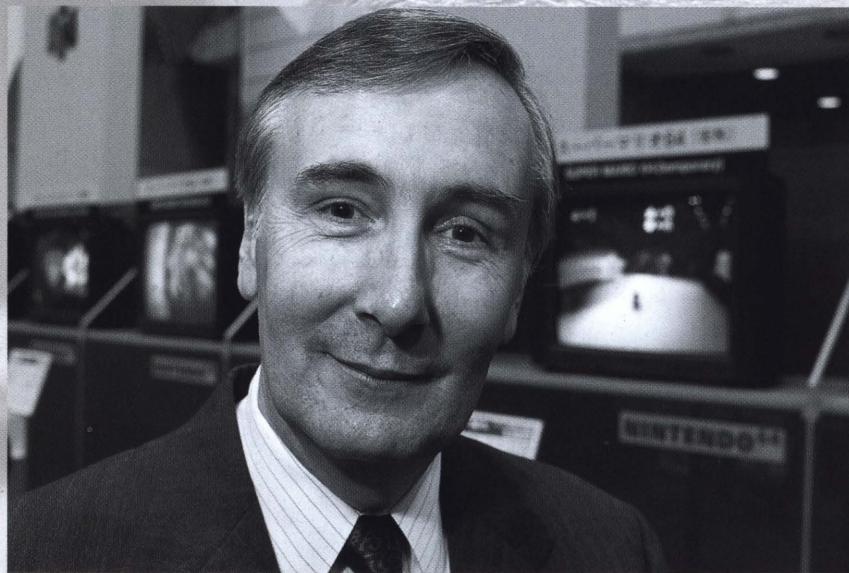
As the interview concluded and Mr Miyamoto prepared to make his way to his hotel room for a well deserved nap, he asked **Edge** for its opinion of the show. After expressing disappointment at only being able to play two games at the event, Miyamoto-san jokingly turned to his colleague and quipped in Japanese, 'Let's show them the rest of the games in secret.' After a curt look from his public relations manager and some words of warning he let slip (again in Japanese) that he had five playable games in his hotel room, before chuckling to himself and wandering off. Needless to say, the invitation to bring up a six pack wasn't extended...

Ultramen

Nintendo Of America's chairman has good reason to be happy. After a successful first day at the Makuhari Messe exhibition hall, and given the immense significance of the Shoshinkai show and what was shown, it's proving a rewarding experience for him and an encouraging indication of what North America can expect next April. Despite a catalogue of unfulfilled promises and delays, Nintendo has finally done it as far as Lincoln is concerned. Edge asked him exactly what the launch means to Nintendo and what lies immediately ahead.

Edge So, it seems like half the world is here to see the Nintendo 64...

HL It's been an outstanding show and the reaction from the trade and the media in Japan has been exceptional. I think we've accomplished all the objectives we had.



Howard Lincoln

which was to show the technology, show what could be done with the hardware chipset, and now I think we can move forward very confidently knowing we've got a winner in the hardware. But we've also got to get three very strong games for the Japanese market and the launch.

Edge The current plan is for a launch in late April in Japan and for the US launch to roughly coincide with that. Did you ever hope that Japan would get a headstart so that sales in the domestic market could be used as a yardstick?

HL Yes, we certainly anticipated that that would be the case. And as Mr Yamauchi indicated, he decided to delay in Japan and not introduce the product before the end of the fiscal year, which is March 31st, just to give the people like Mr Miyamoto a little bit of extra time. I think that will prove to be a very good decision – you can't rush creativity. It just doesn't work.

Edge Do you think this attitude is unique to Nintendo?

HL I think it is unique in the sense that Nintendo has successfully launched three platforms in the last ten years around the world, and they know without any question that you've got to have the finest games possible when you launch a new platform.

Edge Now, Nintendo has been losing

market share for the last five or six years, do you think that the Ultra 64 will see that problem receding?

HL Well, Nintendo's share in the 16bit market is looking better every month and that's simply because we have not abandoned the category that has a 16-18 million installed base, so we're doing quite well in the 16bit market. I think the decision to wait and not introduce Ultra 64 in the back half of 1995 has now proven to be a good one. We said we had quality software, which we do. We indicated we were raising the quality bar in ourselves, which we have. I'm not concerned about the so-called headstart Sony and Sega have had, because I think Nintendo is a very, very strong franchise in the United States. We have all the infrastructure in place, the marketing, sales and distribution, and we have consumers that associate Nintendo's name with very good games.

Edge Of course, the \$64,000 dollar question has to be – will the US and



The American styling of Nintendo's 'revolutionary' controller matches the Ultra 64's body colour and is a far call from Nintendo's usual bright, primary colours

European launches be kept to April 1996? What are the odds?

HL I don't like to put odds on something like this because it can be misinterpreted. At this time our plan is to launch Nintendo Ultra 64 both in the US and Europe at the end of April. I'm not aware of anything that will change this plan at this point.

Edge Is Nintendo taking Europe more

seriously now? Surely it's about time the UK had a wholly-owned subsidiary?

HL I think Nintendo has always taken Europe seriously but it has had some difficulties with the distribution of hardware and software. We've done very well in Germany and France and even without a wholly-owned subsidiary we've done very well, for example, in Scandinavia. The UK has been a difficult market for Nintendo, no question about it. I've spent quite a bit of time in the UK this year and I'm quite hopeful that in THE we've found the people that can do it.

Edge With specific regard to the show there have been a few surprises, particularly the absence of the flagship U64 games, *Cruis'n USA* and *Killer Instinct*. Why aren't they here?

HL True, both of those games are titles we said we would launch with, but gamers shouldn't be concerned that they're not here. Both games are in development and will be launched in 1996. *Killer Instinct*, specifically, is probably not a game that we will launch initially in Japan, so that's the reason for that. Regarding *Cruis'n USA*, Mr Yamauchi made the final decision on what games would be here at the show and that wasn't one of them.

We got through a conference today with the people who are developing *Cruis'n USA*, however, and it's looking fine, so I don't think there will be a problem.

Edge What's the plan with developers now? You've this dream team, you've got some developers in Japan, and you seem to have more and more people coming on board. What's going to happen next?

HL Within the very near feature, I'd say in the next 30 to 60 days, NCL will announce a developer program and third party publisher program. We are working on both of those programs for the States and Europe and will not finalise anything until we see what NCL does.

Edge Why have companies such as Capcom, Konami and Namco, which are traditionally core Japanese licensees in the Nintendo business, not been embodied in the dream team?

HL The dream team has been confined to US and European-based third party publishers. The agreements that we have with various companies like Virgin, Acclaim and Electronic Arts are all with respect to the North American market. That



The US machine is expected to hit stores at the end of April 1996 for less than \$250. Of course, it's possible that the system will be delayed until the traditional fourth quarter sales period...

program, for whatever reason, was not something that Mr Yamauchi shied from in the Japanese market but gave me the green light for the US market. We at Nintendo Of America are quite pleased with what

publishers about the publishing programs of Sega, Sony and Nintendo – I think that's to be expected. But I'm confident third party publishers will be very anxious to publish on Ultra 64. Price-wise, I fully expect third-party software for Ultra 64 will come in at about the same price as 16bit

software is right now – in the \$60-70 range. The issue is the margins. We haven't come up with any pricing for Ultra 64 publishing programs yet so the

I think the decision to wait and not introduce Ultra 64 in the back half of 1995 has now

proven to be a good one

we've done. We've got games at various stages of development due to come on line in 96 and, in some cases, in 97, and they will be exclusive to the Nintendo Ultra 64 platform.

Edge One of the biggest concerns with third parties we've spoken to is that Nintendo will continue to have the upper hand in so much as it will be able to put out high-memory games such as *Mario 64* for the same price as what is essentially the cost of a 16Mbit games now. How are you going to convince third parties that there's a viable business here?

HL I think the short and sweet answer is that any third party that has ever associated itself with Nintendo since the very beginning and made a good game, has made a great deal of money. I'm confident this will continue in the future. There's always going to be grousing by third party

grousing is somewhat premature.

Edge What games in development have impressed you the most so far?

HL SM64 shows what can be done in a 3D environment. Other than that I have been very impressed with Paradigm's *Pilotwings 64* and also the LucasArts games – I think they've done an extremely good job on *Star Wars*. And some of the Rare games are looking good, too.

Edge So does this mean you'll have one sitting under your TV at home soon?

HL I think it'll be sooner than when I got the SNES in, because I'm finding that with this new controller I'm actually able to play the games! I've got to tell you I was really enjoying myself today playing the new *Mario* game. It was fantastic.

Of all Ultra 64's selling points, perhaps the most telling will be the catalogue of Nintendo-specific software available on release. *Pilotwings 64*, a game with its roots firmly buried in the SNES era but with ambitions to raise gameplay and graphics to a level only possible with state-of-the-art

DG Our involvement really came about through SGI, who mentioned us to Nintendo during discussions over the hardware. We were contacted by Nintendo in April 94 to see if we would be interested and, of course, yes, we wanted to pursue that. By late July/early August we started to work with the emulator and got

models. We adapt the models to enhance gameplay, obviously, but our games do have a strong physics background – just like flight simulators have six degrees of freedom, we see that can be best-controlled with the joystick. Which means how the analog controller adapts to heading, pitch, roll...

Paradigm Simulation

hardware, is one title carrying Nintendo's hopes with it. Paradigm Simulation, responsible for *Pilotwings 64*, are a five-year-old US company who's prime business has been in the high-end simulation market. Their core function is designing flight sims, driving simulators, and marine simulators, mainly for training applications running on high-end image generators and workstations. While the *Pilotwings* project is their first venture into the home market, they have enjoyed a long history with SGI. Edge spoke to VP Dave Gatchell.

Edge Tell us about your involvement with Nintendo in the Ultra 64 project.

disclosure on the hardware. We were formally under contract by November 94, even though we had already been working on the system for several months.

Edge Had you been specifically approached with *Pilotwings* in mind?

DG No, the *Pilotwings* project hadn't been decided at that point – even by the time we'd started working on the Onyx.

Edge Does the analog controller help you with the design of *Pilotwings 64*?

DG Coming from a simulation background we try to use physics-based motion

Edge So what did you use before you were given the Ultra 64 controller?

DG Originally we had a SNES controller because we figured the machine would be using a similar device.

Edge So the analog joystick just controls flight motion?

DG No, we also alter the camera independent of the actual flying experience, using the other buttons.

Edge Is that actually an important part of the gameplay?

DG You can use a different view to find





Paradigm is a specialist in military sims (above). The company's egg-head Onyx demo character (top) – no wonder NCL designed the characters in Pilotwings 64...

out where you're supposed to be going, where the pass might lead you; maybe see where bonus levels or bonus objects; it's

The wind effects are very big in

the game, especially with the

hang glider – you have a lot of

local weather patterns to hit

like being able to turn your head and say, 'Oh, what's that area down there?' So yes, I think camera control is a very important part of the game – the rocket pack in particular comes to mind. When you're trying to land, or collect secret bonuses, or fly through the rings and so on, you really need to use learned skill in manipulating the camera, either by moving it or rolling it, to make it through the course.

Edge Did you spend much time looking at the original game?

DG Definitely. We were instructed to study it very seriously so we spent quite a bit of time with it.

Edge And what do you think of it?

DG Although it's a very linear, task-based game, it's really enjoyable, and it was a decent game for the point in time when it was published.

Edge So has this linear, task-based approach changed for Pilotwings 64?

DG Somewhat. There are still very much courses and tasks that you have to complete in order to get to the next level, but what's different from the first game – which was very much a track with a particular path that had to be followed – is that we've developed a very large database with three large areas that you can go off and explore – you can go off and find hidden levels and items or whatever. The course you find may not be the one needed to actually complete that level, but there are a lot of other things to go find and go explore, which I think is quite different.

Edge Does the weather affect flight?

DG Yes, the wind effects are very big in the game, especially with the hang glider – we have a lot of localised weather and air patterns that you have to keep hitting and reaching to travel to some of the areas. They're very realistic, too. We have local winds and thermals, too. Depending on where you are in the database, we try to put them where they'd be in real life. So you get wind coming off the ocean and different things of that nature.

Edge What kind of crafts will be featured in the final game?

DG There are three vehicle types, and one

other type of vehicle/character that we're not disclosing yet. The three types that we've exhibited are the gyrocopter, rocket pack and hang glider.

Edge One of the great things about the original was its use of sound. Is that something you're taking seriously in the sequel?

DG We do have a music track now, but there are also lots of environmental sounds that change. For example, there are different kinds of wind effects depending on what's around you.

Edge How did it feel to take what was one of NCL's strongest ever games and sit



Forgive the poor quality of the above shot – Pilotwings 64 features beautifully crisp 3D

down to write a sequel?

DG I can see some advantages to it: we know our game has a ready-made audience of people who enjoyed the first game. Being new to game development – at least to consoles – it might have been a little different for us because we had lots of ideas we wanted to work with, but Nintendo wants us to stick to a formula that is very recognisable as a sequel. Because Nintendo is the guiding hand we know we're not going to stray too far from the path they want us to take.

Edge How hands-on is Shigeru Miyamoto with the project?

DG He's directed the game but we have our direct contact – a gentleman by the name of Mr. Wada – who we work with directly on the game. We've met Miyamoto and he's been overseeing the game but it's mainly through Wada-san. Miyamoto's involved with a number of other projects so we haven't spent that much direct time with him.

Edge But does he come over, play it and say, 'Well, I want such-and-such...?'

DG Well, he hasn't come over to Dallas to play it. As far as I understand he's playing it at NCL, because we're delivering to them all the time and getting constant feedback.

Edge Given that the original game ran on an 8Mbit cartridge, how will a 64Mbit cart restrict you?

DG We were concerned about resources, particularly memory such as ROM and DRAM. But after implementation we found it wasn't as big a concern as we had thought. We're used to dealing with high end SGIs with 64Mb of DRAM, and even 4Mb just for storing textures, but once we scaled down the textures for the resolution we're using [320x240] they

Ultramen

weren't as big a consumer of memory as we had anticipated.

Edge How close do you think *Pilotwings* will get to the PC school of flight sims, in terms of dynamics and realistic handling?

DG There are definitely some simulation aspects we're trying to capture, such as the genuine feeling of flying – that's important – such as when you catch a thermal and you get that feeling of lift. In the controls we really tried to strike a balance between using technically accurate hang glider flight models and a feel which gamers can relate to. Besides, just the craft that you're using differs wildly from most simulations – there are very few rocket pack sims for example.

Edge What do you see as being an average frame rate in the finished game?

DG Our target frame rate for this game is 20fps. It's the same when we're looking at any software, be it games or simulation: we have to determine the capability of the box, what we perceive that to be, what is our budget for polys based on what our application is, etc. For this particular game we're going for 20Hz, that is 20 frames per second.

Edge So are you making a trade-off: losing frame rate for detail?

DG Definitely. We were concerned at Shoshinkai because the tape shown was three or four weeks old and the game is



quite a bit more advanced than that. Plus, there are a lot of speed issues that haven't been addressed yet – we haven't really started tapping the machine's performance, and that's one of the things we can quite easily rectify at a late stage. I think you'll agree, though, that the surrounding game scenery is more complex in *Pilotwings* than in some of the others shown.

Edge The game's characters are very reminiscent of those in *Star Fox* – presumably these were Nintendo's work?

DG Yes, that's right – they just turned up

one day and we immediately started to implement them in the game. There's no story built around the characters as such, but they are very visible in the game and possess different characteristics. For example, the strong burly guy obviously requires a lot more lift but can also turn the hang glider faster – it's things like this that noticeably affect the flight model.

Edge So when's the deadline?

DG We plan to roll out with the hardware in April and we're scheduled for completion by March 1st.



These shots were grabbed from Nintendo's press video and, while extremely blurry, give an indication of the quality of the visuals in Paradigm's first N64 title. Besides four different crafts, the game will feature action replays and a game save mode that will use the system's unique memory cards

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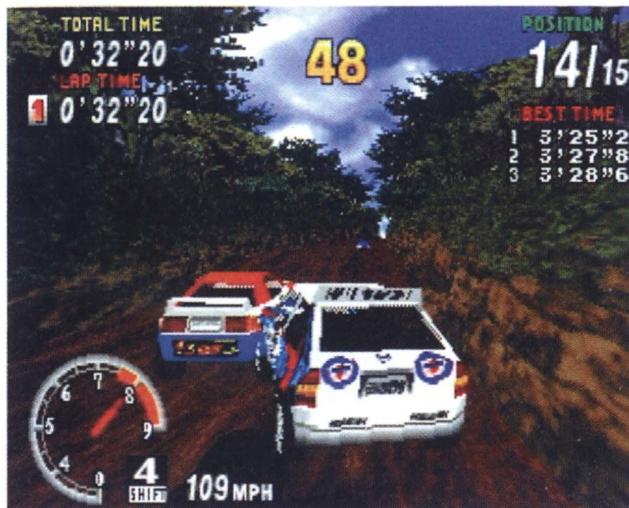
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Sega Rally



It may not be the most technical of racing games, but Saturn *Sega Rally* expertly transplants just about everything that made the coin-op a landmark game, most importantly its sliding, swirling handling model. In the absence of a PlayStation-style link-up mode, the splitscreen option delivers the goods.



Sega Rally offers some intense high speed skirmishes – whether hurtling through a claustrophobic forest pass (left) or along a wide, grass verged freeway (right) a little healthy competition adds much to the excitement. However, the three-lap arcade mode can be a lonely experience

Format: Saturn

Publisher: Sega

Developer: AM3

Price: £TBA

Release: mid-January



The in-game physics are impressive. When corners are taken sharply, the car banks onto two wheels (above)

It is getting more and more difficult to judge racing games. All the traditional superlatives have been used up and turned into clichés. Everything that can be said about frame rates, power slides and artificially intelligent opponents has already been said. Worse still – many believe the genre peaked with *Daytona* and *Ridge Racer*. For a while, judging by the likes of *Indycar 2* and *Hang 'On GP '95*, it looked like the cynics were right. How lucky then that *Sega Rally* – a fresh new take on the arcade driving game – should come along to blow all the lethargy out of this overcrowded game style.

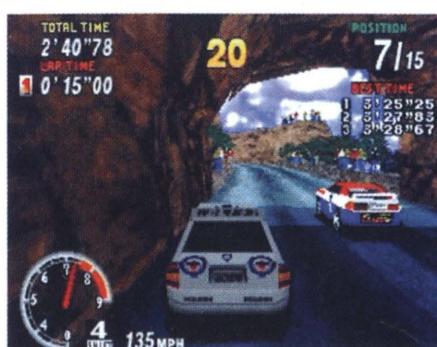
On the face of it, *Sega Rally* offers nothing extraordinarily new. The front end has the usual selection of game modes – championship, practice, time trial. It also proffers the usual selection of vehicles and gear transmission options (automatic and, 'only a fool would try it!', manual).

In fact, it's only when the game itself begins that the differences between this and Namco's sequel *Ridge Racer Revolution* become clear. For a start, *Sega Rally*, as the title would suggest (although you can take nothing for granted these days – God knows what *Road Rash* suggests) moves out of that stereotypical urban sprawl, where circuits

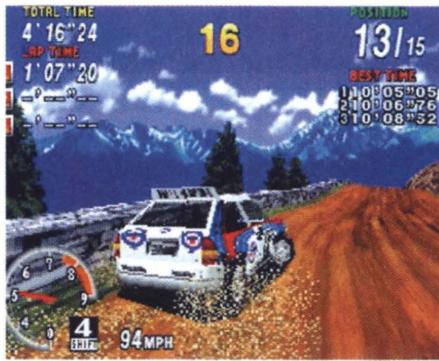


snake through skyscrapers and beneath overpasses. Instead, the four courses on offer here take in a menagerie of rough country terrains including treacherous mountain passes and muddy forest tracks (the desert level is rather strange though – green fields, mud, grazing cows – have Sega never seen a desert?). In short, *Sega Rally* introduces a whole new, refreshingly grungy, look.

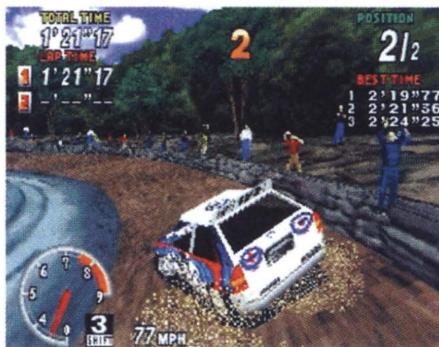
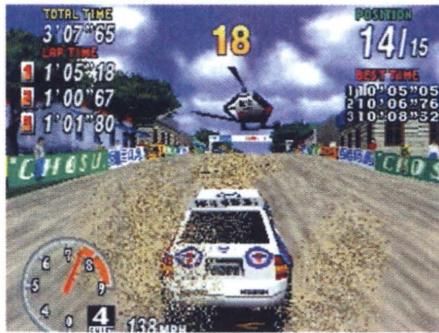
This isn't just a cosmetic change, as it so easily could have been. These tracks really are



Although the 3D is not perfect, objects in the distance are still visible very early with minimal block in – even when viewed through a tunnel



The two player split-screen option is perhaps *Sega Rally*'s finest feature. Although the graphics suffer slightly by being squashed to fit, the game itself doesn't. Excellent stuff



On dirtier tracks, cars can be lost in clouds of mud and dust. That doesn't put spectators off (above). Or helicopters for that matter (middle)

forces acting on the car as it takes a sharp corner at 100 mph. This near-perfect simulation indicates the amount of car handling data included on the CD. Few driving games can boast the wealth of characteristics present in the *Sega Rally* vehicles. The interaction between player, car and circuit is a constant, frantic skirmish, but it feels realistic and is incredible fun.

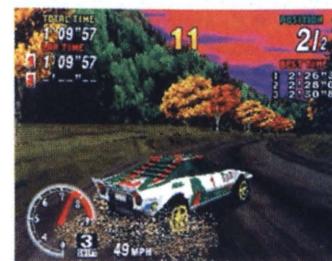
A serious criticism though: in arcade mode, *Sega Rally* can be a lonely experience, especially when a three lap race is chosen (races occur over either one or three laps per course). While driving, the player will usually only meet one opponent at a time and cars are so far apart that long stretches of the track will go by before another racer is even spotted. Consequently, *Sega Rally* often feels like a race against the clock rather than a race against intelligent competitors. Ironically, **Edge** often complains that cars are too bunched up in racing games, but SR goes too far in the other direction.

It turns out that the best opponent is not the computer, but a friend, via the excellent two player option. Of course the split screen suffers from the usual graphical problems associated with squashing two game screens onto one TV, but the excitement and worryingly savage rivalry that results more than makes up for any visual disappointments. The two player mode is great fun, especially when the 'slower car boost' option is active, ensuring the players usually battle along within microseconds of each other.

Sega Rally is a victory on a number of levels. Even though it runs at half the coin-op's frame rate, this conversion seems to capture the whole energy, look and feeling of the arcade original. Furthermore, put this side by side with the Saturn *Daytona* conversion and it's hard to believe they are running on the same machine. More important than *Sega Rally*'s credibility as a conversion, though, is the fact that it is a challenging and enormously playable game in its own right. *Virtua Fighter 2* and now this? Happy new year, Saturn owners.

rough and demand a totally different style of driving from the smooth tarmac of the city racers. Each circuit is riddled with bumps, ramps and potholes which send the player's car soaring into the air and then grinding into the mud on the other side. In outside view, this abuse is even more evident. When the track is fairly level, dirt and grit spray off the wheels at every turn and the whole car bobs up and down on the suspension with realistic ferocity.

Just as the track looks like it pushes the cars to physical extremes, *Sega Rally* actually feels like a physically demanding game to play. Often you find yourself fighting with the controls to get the car to stay on the track since it handles in such a determinedly bouncy way. This is by no means a bad thing. On the contrary, this is a victory in simulating momentum. The player can almost feel the



The bonus track, Lakeside, features glorious autumnal scenery. Here it is being tackled in the special car, the rear-wheel drive Lancia Stratos

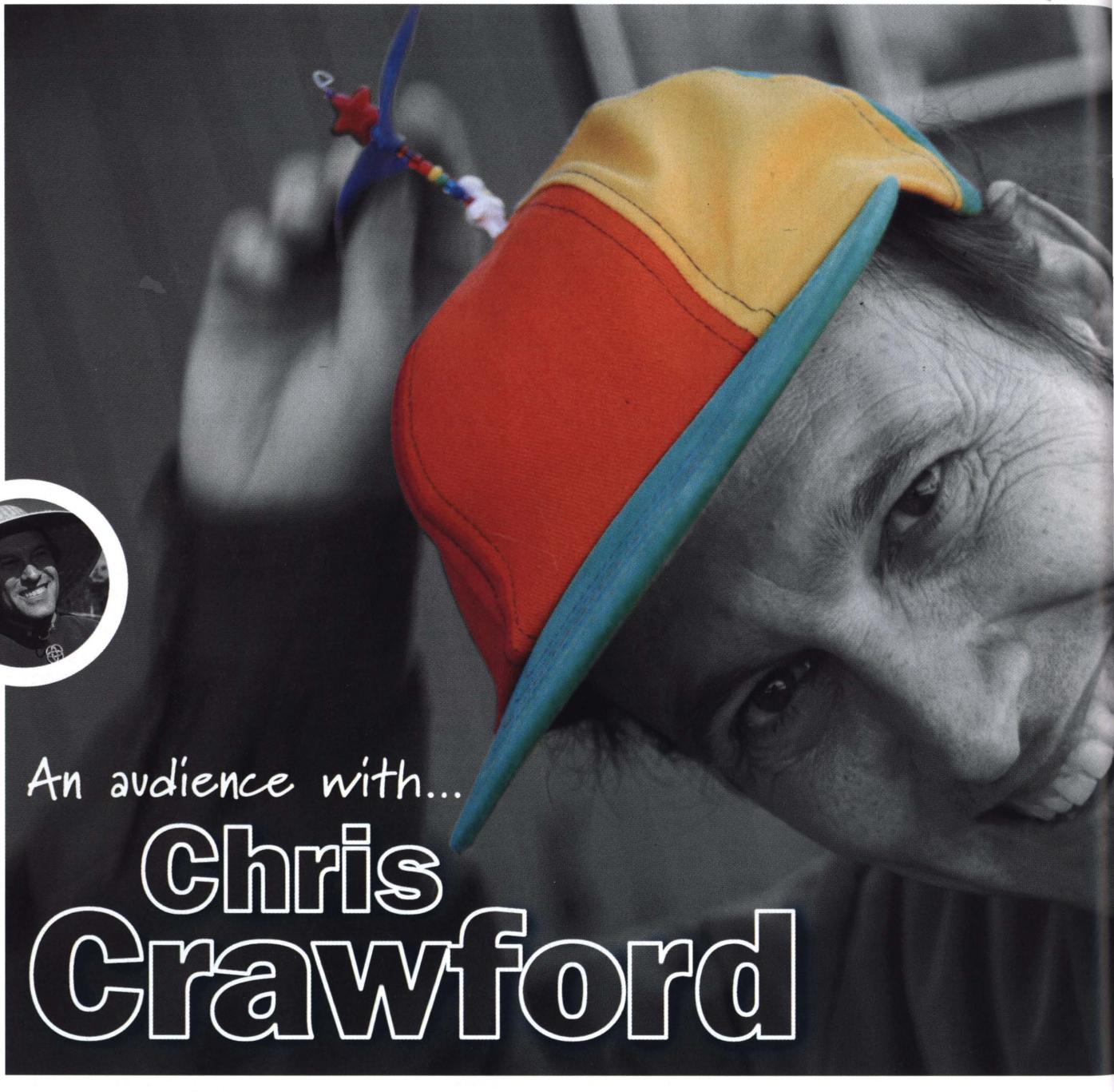
Edge rating:

Eight out of ten





"Yes, we've got all the nerds. But who gives a damn about the nerd dollar? We could be getting normal people. There are millions and millions of normal everyday people who are not interested in nerd games. But all we sell are nerd games." Ladies and gentlemen: Chris Crawford.



An audience with... **Chris Crawford**

Do you rate *Virtua Fighter 2* highly? Do you think *Wipeout* is the pinnacle of gameplay? Chris Crawford, creator of mould-breaking strategy title, *Balance Of Power*, doesn't, he dismisses them merely as 'airy foam.' So what's the alternative? What is the real future of interactive entertainment? **Edge** talked with computer gaming's self-proclaimed 'Profit in the Desert' to find out...



widely respected as one of the brightest minds in the business. But he is also controversial. He is a maverick, a has-been, a genius, an idealist, or the saviour of gaming, depending on whom you talk to. Everybody has an opinion. Working alone, in exile from the mainstream gaming community, he is forging a new frontier of gaming.

Edge What is your perception of the games industry in 1995?

Chris I think the key word is maturing. We're definitely out of the Wild West stage of the early eighties. Maturing means good things and bad things. The good things are that a lot of the business relationships are more stable with not as many rip-offs going on.

On the other hand, we're a bigger business. The lone wolf is dead. The good old days when a kid with a bright idea would put a game together at home, those days are gone forever.

Edge Does that sadden you?

Chris Well, yes and no. It's kind of like the aging of an individual. I'm older, when I was 20 years old I was wilder and crazier. Nowadays I'm slower, I'm more responsible. But on the other hand I don't make as many stupid mistakes.

Edge Having said that, every now and then a killer new game arrives from out of nowhere.

Chris You see them, but they are rarer and rarer occurrences.

The biggest one that we have had in the past few years is *Doom*, and *Doom* was put together by a bunch of nobodies out in Texas who just were out of touch. There is no way *Doom* would have been done by one of the mainstream companies.

But *Doom* couldn't happen today. Id Software would not be able to compete against the big boys in today's market place.

Edge So is maturity a good thing?

Chris Yes, but unfortunately I still think we are handling the maturing process poorly.

One of the big mistakes I see the industry making is that there is a complete lack of any long-term strategy. The industry is very much, 'We will sell tomorrow what sold well yesterday.' The fact is, audiences change and audiences evolve in several ways. One of the simplest rules of audience evolution is if you abuse your audience they won't come back. And our industry abuses its audiences frequently. We foist junk on people and they don't come back. There are lots of people out there who put stuff out on the shelves, they throw some money at it and they say, this is good enough and it will probably sell. And people do buy it – once.

There is one story I love to tell, it's of an executive from a very large, very successful company who, ten years ago, expressed this philosophy perfectly. He said, 'Chris, I could sell dog shit in the right box.' I looked at him and said, 'You do.'

Edge So why don't games improve?

Chris The game industry needs to recognise that there is such a thing as R&D. Silicon Valley knows this very well but the entertainment industry just doesn't get it. That is, you set aside a proportion of your profit every year for research. You've got a group of people who just go off and do research and look at wild and crazy things. Most of what they do is a complete waste of time but every now and then they come up with something great. This industry has zero research budget.

Edge Do you think gaming has a lack of ambition?

Chris The foolish mistake is a failure to realise that although these kids are spending money now, by holding on to them when their buying power starts going up, you can really cash in. But once they turn 18, it's like 'get lost, we don't want you anymore.'

It's idiocy. There's a huge marketplace out there for people who were raised on Atari who are perfectly comfortable playing games on a computer, but they aren't playing games because there is nothing to appeal to their tastes. It is a lost business opportunity worth billions of dollars.

Edge You really believe there is nothing there for the mainstream?

Chris There's nothing there for adults' taste in general. The industry fools itself

'An executive from a very large, very successful company said to me, 'Chris, I could sell dog shit in the right box.' I looked at him and said, 'You do.'

Chris Crawford thinks more about computer and videogaming than anyone else **Edge** has ever met. As the founder of the highly successful Computer Game Developers' Conference, an active game programmer since 1974, director of development at Atari in the early eighties, and the editor of US mag, Interactive Entertainment Design, he is

interview

and says, we've got 1.5 million people in their 20s playing games. And they say look how many consumers that is! But what percentage of the total market is that?

Yes, we've got all the nerds. But who gives a damn about the nerd dollar! We could be getting normal people. There are millions and millions of normal everyday people who are not interested in nerd games. But all we sell are nerd games. So what we have to do is de-nerdify our products. The problem is that nerd games are a lot easier to do.

Edge What about the R&D effort of people getting to grips with exploiting CD-ROM technology?

Chris It is important to recognise that CD is a data technology not a processing technology. And interaction goes through processing not through data. In other words, CDs can do nothing directly to improve the quality of our interactions. They can only make games look prettier.

I don't know, it's my feeling that just about the time we figure CD out it will be made obsolete by high-speed network stuff. **Edge** But graphics have to play a significant role. How about if, as a game creator, you wanted a player to sexually desire a character in the game? Surely a digitised image of Cindy Crawford will work better than a bunch of text?

Chris Sure, if we're talking about adolescent males, you're going to get a lot further with a pin-up than with a lot of personality. And most adolescent girls will tell you they are a lot more popular if they stuff some tissue paper in their bras. And they resent that about boys. So the question is, are we going to go around stuffing tissue paper in the bras of our games? I for one am not going to do that.

Edge So what is a game? How do you define it?

Chris I see the game as an interaction that involves challenge. Actually I don't want to use that as my formal definition. But that's a quick and dirty rule of thumb.

There is always some sort of challenge to the player. The problem with today's games is that either the challenge is weak or the interaction is weak. A good example is *Myst* where there is a strong challenge but a weak interaction. Challenge normally

arrives from conflict, all games have conflict, just as every story has, too.

Edge Is that why violence is so big in videogames?

Chris My observation is that there's nothing intrinsically wrong with violence, but it gets boring. Violence is kind of like crude language – you can pepper your conversation with obscenities. If done rarely, it's spice, over done it's just boring.

Violence is to movies and games as sugar is to foods. It's very pleasurable and very intense but jeez, I can't eat sugar all day long.

Edge No, but it would seem that 13 to 16 year olds can.

Chris Yes. Thirteen to 16 year olds can eat candy, too. A lot more than I can eat. In fact there's a very close connection here. I once did an essay called 'The

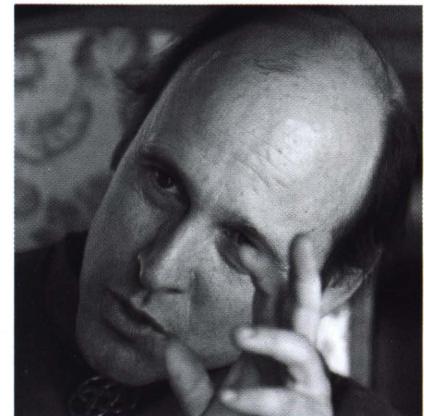
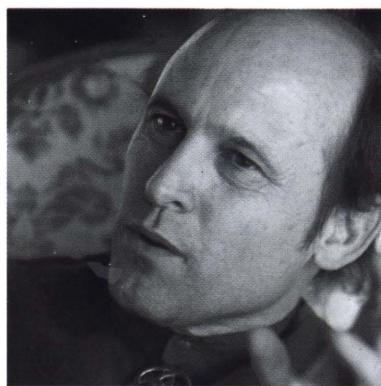
never ever get to French cuisine?

Chris Right. The whole system closes into itself because customers start to say, 'well you know, videogames are for kids, not adults.' So they don't even consider buying them. Even if French cuisine became enormously profitable and everybody was eating croissants and so forth, McDonalds still couldn't do it because even if they made the best French food in the world, people would say, 'Yuk, McDonalds,' and they'd never go in to try it.

Edge You've made some pretty harsh criticisms of the people running the game industry. What do you think these people think of your work?

Chris They'll say, 'Chris is a dreamer. He doesn't have to answer to shareholders.' And they'll mutter to themselves about the unrealism of all of this. They'll also admit to themselves that there are elements of truth to what I'm saying.

My role in this industry has been the prophet in the desert. The only reason I'm tolerated is because I've been right too damn often.



Evolution of Taste, where I pointed out that in a whole bunch of media, when you're young you gravitate toward the intensely pleasurable form of it. It's short, very intense, very pleasurable, but then your taste always evolves toward a more subtle, more lasting experience.

Food – kids love candy. When they become teenagers they go for hot-dogs, hamburgers, and pizza, so forth. Only when you age can you appreciate a well-baked piece of bread. You appreciate the subtleties. Or start appreciating fine French cuisine... But when we go to computer games, there's nothing like any of those.

Edge So exactly where does the game industry come into this analogy?

Chris This industry sells burgers.

Edge And you're arguing that we will

Edge How could the 32bit technology of 1995's gaming systems be used to improve gameplay and not just game graphics?

Chris There's no question that you could build products of enormously greater richness than we now have. We're putting all of this energy into the cosmetic factors. But at some point we've got to stop squeezing this particular sponge – because it's going dry on us – and turn to the sponges we haven't even looked at. And those are the input side and the interaction side. The algorithms used for interaction in games right now are ridiculously primitive. A high school student could design smarter algorithms. Graphics algorithms are brilliant, but the actual interaction algorithms are really stupid. Very small investments in interaction algorithm design,

I'm sure, can yield gigantic leaps in gameplay value.

It is the same problem with inputs – the inputs available to a player are really stupid, in terms of the language of expression.

Edge By inputs, do you mean the way the player communicates with the game?

Chris Yes: up, down, right, left, or fire. And then there are jump, duck, or a few others. A very simple question a very good designer can ask is: what does a player get to do? Don't tell me what he hears, don't tell me what he sees – those are passive things. Those are what happen to him.

Tell me what he does! What are the verbs available to him? And the best expression of these verbs are things he inputs. So let's translate a game like *Doom*. What are the verbs in *Doom*? Turn right, turn left, go forward, go backward, change weapons, and fire. That's the entire vocabulary in *Doom*. Six words. That's not a very rich language, is it? What *Doom* says to the player is enormous, all these images, sounds, and animation – but what does the player get to say back? Very little.

When I contrast the thousands of verbs in real interpersonal interaction with the half dozen verbs in a typical videogame, I look at that difference and I say, therein lies our greatest failure.

But then that raises all sorts of other issues. Even if you did provide the player with all these verbs, how is he going to play it? What should the game designer do? Give the player a book to learn the language before they can play your game?

Edge How are you, with your own work, driving to improve the complexity of gaming?

Chris About four years ago I realised that the thing we were really missing was the element of people. I had identified that as the critical problem while at Atari but I had no idea how to solve it.

Edge When you say games are missing people, do you mean they're missing personalities, characters?

Chris I mean that you don't interact in any

meaningful or interpersonal way with any character in any computer game. The two most common ways humans think are in spatial logic and verbal logic. Computer games are 99% spatial logic. Most everything you do is go north, go south, pick up this, shoot that. It's always moving, moving, moving – fine for some people. Mostly adolescent males. But that's not the whole world of human thought.

Edge Do you think that could be the crux of why games so far have been a male pastime?

Chris That's a major issue. The spatial factor is basically a huge sign on the front house door saying 'NO GIRLS ALLOWED'. Spatial reasoning chases women away. It's not that they can't do it, they just don't like it. Why would they want to be entertained with something that's not entertaining?

Edge So you are suggesting a fundamental shift from the way games have traditionally been made? That's a huge undertaking.

Chris It's a little realisation so fraught with implications that one thing leads to another, which leads to another and another and... and that's where four years went.

For example, if you are ever going to produce a realistic behavioural model of artificial behaviour, then you need to consider context. And that implies that you have to keep detailed records of everything that happens.

Every single event that takes place in the game must be stored, so if a guy approaches a girl for the fourth time and says, 'Hey, will you go out to the movies with me?' she can consult her history book and realise that he's already asked her out three times. Previously she's replied with, 'No thank you, I'm washing my hair Saturday night,' but now she can say on the fourth time, 'Get lost, creep!'

But she can't do that unless she is aware of the history of their relationship which means that you have to store all of those events in a way that is useful, meaningful, and also suitably compact. The

number of events you can get goes way up into the thousands, and it also has to be easily searchable.

Edge We understand that you've spent a lot of time trying to create a computer program that models gossip. If you can get this right, then it bodes well for being able to recreate other 'human' behaviour, right?

Chris Yes. The essential question is under what circumstances will somebody gossip to somebody else about an event? Well, it depends on a lot of factors. It depends on how much I like you. It also depends on how important the event is to me. And I'm also going to tell you about things that affect you. So I programmed all these algorithms to determine when a character would tell another character about an event. Then I tested them.

The example I'm running is with the characters from King Arthur's legend. Let's take for an example the day when Lancelot seduces Guinevere. He's overjoyed, but is he going to tell somebody? The event is very important to him so he's strongly inclined to tell. He's going to tell somebody he likes, somebody like his best friend. And also he wants to tell it to somebody to whom this news is significant.

Edge Well, that's King Arthur.

Chris Right! And so Lancelot finds his best friend King Arthur and says, 'Guess what, I just made love to Guinevere!'

Edge That's not too realistic...

Chris Right! But why not? Try writing a computer program that would have got it right! That's a very good example of the way these things can blow up on you.

But I'll keep working on it...

EDGE

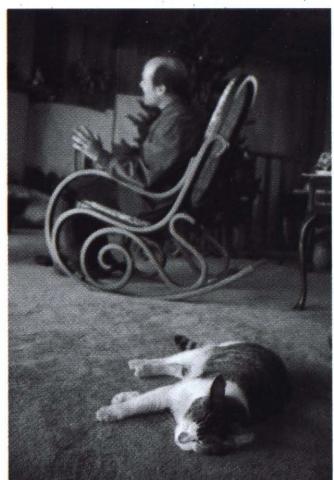
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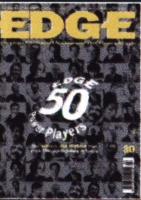
Edge prints the first in a series of essays written by Chris Crawford, idealising over the future of gaming.

Imagine a time when games are no longer single-player experiences, but involve multi-user activity, either across a network or by implementing true artificial intelligence.

Imagine playing a game where the opponents are not sorcerers or aliens, but are real human beings acting out a specific role. It would be possible to talk to them and receive real, situation-based answers.

Imagine what happens if one of those human players decides to turn off his networked computer. All the possibilities are discussed in next month's **Edge**.





With the failure of MPEG1 to become a true massmarket proposition, increasingly the multimedia industry is looking towards a software solution to digital video. **Edge** talks to Eidos, one of the leading contenders

Eidos

Format: **PC and Mac**

Publisher: **Eidos**

Developer: **In-house**

Release date: **Out now**

Origin: **UK**

Last year Eidos, a relatively unknown company with a turnover of a mere £254,000, announced that it was in discussion to acquire software developers Domark, Big Red and Simis in a deal worth over £13 million. Termed by the stock market a reverse take-over, the company had to issue 1.5 million shares to finance the deal, all of which were sold.

It's a fair bet that anything the smart money in the stock exchanges gravitates to has tremendous potential – what's got the brokers so interested this time is the *Eidos Software Codec*. The *ESC* is a proprietary, software-based solution to video compression and decompression (hence codec) and while it's a long way from being the first of these ever to be developed, it has the potential to develop into the most influential.

With MPEG staggering lamely on towards the introduction of MPEG2, software routines such as *Cinepak*, *QuickTime* and *Indeo* seem to have stolen the high ground from the hardware-based systems. The benefits are obvious: for a start no extra hardware needs to be installed, and the playback software can comfortably be inserted as part of a published CD-ROM (*Eidos*, for instance, is loaded into RAM from disc and takes up approximately 250K). Software routines are also scalable, adapting to the speed of the host machine's CPU and tending to benefit from the consistent doubling of CPU speed every 18 months; unlike hardware which, once it's set in silicon, is set there for good.

Eidos' technical director, Simon Protheroe, likens it to Einstein's

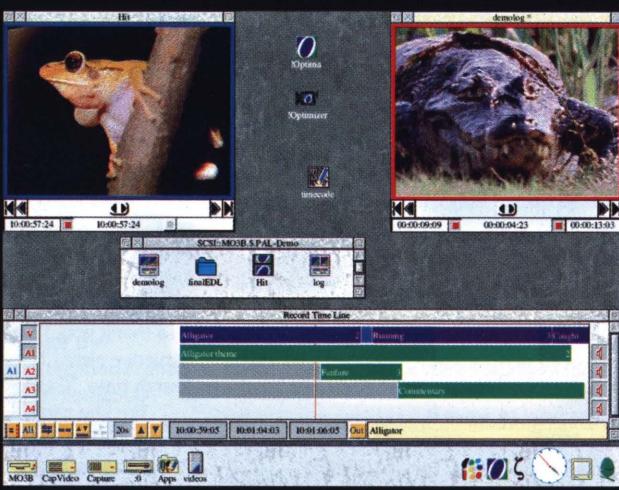
famous quote about standing on the shoulders of giants. 'You've got these huge multinationals like Intel and IBM making these amazing processors and amazing computers and they're getting faster and faster – twice as fast every 18 months – and completely revolutionising everything. What we have to do is just say, 'Oh, your computer's twice as fast now is it? Well that means you can do twice the resolution or twice the compression rate or whatever.'

The codec's current 150:1 compression ratio (equivalent to reconstructing a page of text from three words) allows it to compress a 95 minute film onto a single conventional CD. This compares very favourably with MPEG's two CD requirement but, perhaps more importantly, the end quality of the decompressed footage is also rapidly approaching superiority.

Protheroe attributes this to the company's initial development of the



OPTIMA



Unlike MPEG chips the codec is software-driven, meaning compression times depend on the host's CPU – speeding up with newer processors

The codec's current 150:1 compression rate allows it to compress a 95 minute film onto a single CD



One use for Eidos' codec lies with videophones (see side story). Being software-based, the \$200 codec should smash BT's price of \$4,000

Videotelephony

One of the main current thrusts of the codec's development lies in the videotelephony field. As with CD-ROM, the playback software can be sent in the message header, meaning that a receiving station is unnecessary for playback. Crucially though, especially with the rapid increase of internet availability, most of the equipment is already extant in the marketplace.

'The next stage in the process will be when digital cameras come out,' says Protheroe. 'They're essentially cameras on a chip, costing about \$100 OEM. They plug into the parallel port of the computer and they'll give you realtime video. The only real application for that is video communication and we have the software to bundle with the hardware. Suddenly, instead of paying \$4,000 for a BT videophone it's \$100 for the camera plus mark-up (about \$200). That's 20 times cheaper.'

Industry analysts expect videotelephony to go massmarket at a price point between \$1,000 and £1,000. If Eidos can hit the market at around \$200 and achieve the quality on domestic equipment of the demonstration set-up in their offices, then they could have a serious heavyweight product on their hands.

'When my world domination ego escapes a bit,' says Protheroe, 'Bill Gates is saying there are 200 million PCs. Well, there are 2,000 million telephones and 2,000 million TVs in the world which can use our comms technology.'

codec as part of an off-line video editing system. Frames are often examined individually in that market and any evidence of macroblocking would not be tolerated. But *Eidos* is a long way from being the only codec on the market with *Indeo*, *CinePak*, Duck and Smack also jostling for dominance. Unsurprisingly, Protheroe is dismissive of the competition.

'For a lot of the algorithms they get some mathematical formula, then they implement it, it does something and that's it, they can't change it. It just happens that it seems to conform quite well with how human perception works. We've done it from the other side, we've actually asked the professional [video] editors who spend their whole lives crafting images what they think about the pictures and how they can be improved. Our algorithms match much more closely the way human perception works and while it's true that some mathematical formulas by chance correspond reasonably well, ours is actually designed to fit.'

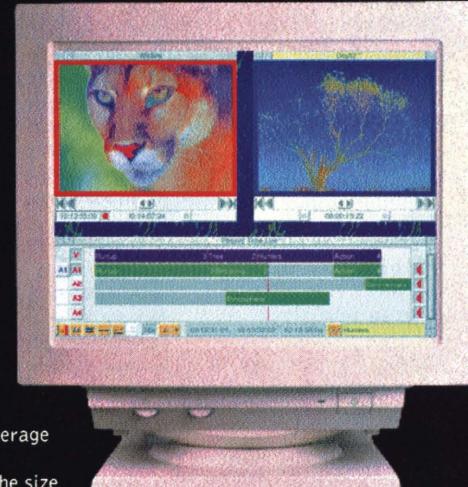
'For example, the human eye is not very sensitive to blue. In frequency, blue and green are actually miles apart compared to green and red but blues and greens actually appear very similar visually. There are hundreds of shades between red and green, like oranges and yellows, and it's all to do with the ripening of fruit in our pre-history; as the colours don't change dramatically when fruit ripens we're very sensitive to that. If you know that, then you know not to have millions and millions of code words for all the shades of blue because you can't tell them apart, but concentrate the code words around the oranges and reds that make up the picture.'

Duck's *TrueMotion* is probably *Eidos*'s nearest competitor. Unlike *Eidos* – and indeed MPEG – which compare frames with preceding ones and throw away the repeated data, it's an intra-frame system. This allows it to compress frames individually without referring to either the previous or next frame. Supported by Crystal Dynamics, Sega and Gametek it is, however, handicapped by requiring a very fast data source to perform at optimum speeds.

Eidos meanwhile will work quite happily on a 486/33 with a sub-double speed drive. Admittedly, peak performance isn't reached until you ascend into the realms of the Pentiums and PowerMacs but the quality is still impressive.

Naturally Protheroe refuses to go into too much detail about the codec's workings, but at its core is a pre-generated look-up table which works in conjunction with optimised CPU dependant algorithms to compress and decompress in realtime. As clock speed and average RAM sizes have increased, so has the size of the look-up tables, allowing progressively more complex questions to be asked to *Eidos* by the software.

Eidos is keen for CD-ROM publishers to start utilising their codec and one of the stated reasons for their takeover of Domark was to obtain a platform to showcase their technology, primarily in the US. To that end, three games released so far – *Tank Commander*, *Absolute Zero* and *Championship Manager II* – have used the codec in their intro sequences. Later on this year, Domark will also release the helicopter warfare sim *Apache* which will be the first title to adopt *Eidos*' compression for its in-game graphics. Intriguingly, also under development are plans to incorporate the codec into a realtime 3D rendering engine, currently being assembled by Simis. Realtime branching is also a possibility, the video-editor managing this quite happily at data rates analogous to quad-speed drives.



Eidos' codec will be compatible with both Mac and PC platforms

The way games ought to be

Hi-octane games theory by Chris Crawford



Number 1: Networked Interpersonal Games

In the first of a series of essays discussing the future of videogaming, game idealist Chris Crawford talks of a world where game enemies are living humans, not computer-controlled foes

Perhaps the most exciting aspect of networked games is their ability to provide interpersonal interaction. I have often complained that traditional computer games are always about 'things' (pick that up, go there, use this, and so on) and not people – and this shortcoming has held back the development of the medium. The difficulty, of course, lies in the problems of artificial personality and personal expression. Sure, you could come up with a program capable of understanding 'I love you', but how about 'Who was that man I saw with last night?' – especially with its manifold interpersonal implications.

The problem of automating interpersonal interaction, of coming up with artificial characters that really work, has been attracting attention for some time now, but the sad fact is that we really haven't cracked the problem, or even come close. My own work in this field has made much progress, but it has taken three and a half years, and I still don't have a commercial product.

The people in the networked games biz toss their heads and laugh, 'So what? Who needs artificial personalities when we can have the real thing? And no computer model will ever rival the richness of human interaction!'

They're right on all counts. Moreover, they have another advantage: when you use the computer to connect humans rather than simulate them, you save lots of resources. My software uses gobs of RAM and zillions of machine cycles to simulate the most rudimentary of human behaviour. Network people

don't have to write monster software to handle these problems; all they have to do is ship bits between players. What could be simpler?

But there are some drawbacks that have so far crippled the network designers, preventing them from realising the potential of this medium. In this essay I hope to address some of these killer problems and discuss strategies for solving them.

Dropout

This is the worst of the problems. Imagine yourself in the middle of a hot game. Derek has just made a move on your girlfriend; your kid sister has just informed you that she's pregnant, but will not reveal the father; and Vanessa has just announced an attempted hostile takeover of your oil company. Things are really cooking – when suddenly Derek announces that his wife is calling him to dinner, and drops out of the game for the night. Because he's playing a crucial part in the drama, the whole game is frozen. The problem is compounded by the number of players. The more players there are, the greater the chance that a single-player dropout will shut down everything.

This problem, of course, is not limited to interpersonal games; it has been around for a long time. I recall a story from a defence department computer simulation that illustrates its severity. The simulation linked up commands from all over the country in joint wargames. I saw a videotape of one such operation, an amphibious invasion. A helicopter had just ferried some troops ashore and had just returned to the troopship to make another pickup. It settled down on the landing deck of the troopship and cut its engines. A moment later, a line defect caused the loss of connection with the naval base controlling the troopship. Because the network used distributed computing, the connection triggered the loss of all units controlled from that station. The troopship suddenly disappeared from the simulation. The helicopter was now hanging in the air, with no

power to its engines. It fell into the sea and was treated as a casualty.

The truth is, there is no way to insure players will remain in a game they have begun. Some of them will

No computer model will ever rival the richness of interaction

certainly drop out before the game is completed, and if the role they played was crucial, then the game will collapse. What can be done about this problem?

I know of four basic approaches to this difficulty: player replacement, non-crucial players, reduced probability of dropout, and bridge artificial personality.

One: The first strategy is to immediately replace the missing player with another human. Presumably there will always be a steady supply of players; all the network need do is hold incoming players for a moment to see if any existing slots have opened up; if so, then the incoming player is placed into the existing game.

The problem with this approach is that it drops the new player into a slot he knows nothing about. Without knowing the interpersonal history, how can the player appreciate the subtleties of the interpersonal situation? How can he know that the character he is playing has been a two-timing, double-dealing, low-down skunk for the last two hours, and that's why everybody hates him? And consider the experience from the point of view of the other characters. Here's a character who for three hours has followed a consistent course of action: he's a snake. Then suddenly, the character is transformed into a teddy bear who wants nothing more than to be loved. This isn't a plot twist; it's a plot disjunction. Lastly, player replacement cannot always be counted on to work. There will still be times when there just isn't anybody available, in which case the game has to shut down. Thus, player replacement does



In his first column, game theorist Chris Crawford addresses the many issues facing designers of networked games. Will the future see in-game progress involve acquiring 'fame points' for, say, how well you perform in managing a relationship? Or will it, in fact, be measured by your stockpile of swords?

not provide us with a satisfying, reliable solution to the problem of player dropout.

Two: Another approach I have heard about attempts to reduce the impact of any single player on the overall game. One such case involved a trading game in which characters engage in bidding for commodities. If one player drops out, then the market isn't much affected. Another variation of this strategy makes the player a voter in making crucial decisions. This strategy eliminates the problem by eliminating the significance of the player. It no longer matters what you do, because the game can chug along just fine without you. I don't see much value in this approach; it robs the player's actions of meaningfulness. Who would care to play a game in which your own actions (or even your very existence) don't really matter?

Three: A third approach is to reduce the probability of dropout, either by reducing the duration of the game or by making the game turn sequenced with long intervals between turns so that players can be certain to get their moves in. In the former case, the game is kept to 30 minutes' duration or less; this reduces the likelihood of player dropout. Moreover, it insures that, should somebody drop out, little is lost. The players can simply start over with a new game. The difficulty with this approach is that it limits the richness

hand, this solution breaks up the interaction into a slow-moving dance of discrete steps. Seducing a cute chick one box of candy at a time could take months. While it works reasonable well with certain types of strategy games that require lots of thought with few moves, it cannot deal with the more intense interaction of relationships.

Four: The fourth approach to player dropout involves the use of what I call 'bridge artificial personality'. The idea is to use artificial personality to bridge the gaps created by player dropouts. By noting a player's moves, the computer can build up a model of the player's personality should the player later drop out, the computer can turn on the artificial personality to take over for the player. While the artificial personality would never be as rich or interesting as the real thing, it might be good enough to cover the gap temporarily.

The downside for bridge artificial personality is that this technology will require a considerable amount of work to create. However, such technology, once created, could be adopted to a wide variety of network products. It would also give us a new twist on the *Turing test*.

Timing

Another difficulty with networked interpersonal games comes from time zone differences. Most people are going to play games during their off hours, typically 7 to 10pm on weeknights.

Unfortunately, this window is too narrow to permit people from widely

as important as strategy, and it's really hard to maintain a mood over a 12-hour time gap.

It's my belief that there is no good solution to this problem. Partial solutions can work, however. An **interpersonal** game could be set up with mostly west coast players, plus one person from Japan – in the evening on the west coast it's still morning in Japan. Similarly, east coast players could play mostly among themselves, with the game spiced up with west coast players (a three hour difference) or European players (a five hour difference). The trick is to have most of the players from one time zone meeting at a convenient hour, and a few adventurous players from other time zones showing up at an inconvenient hour.

Dramatics

Still deserving some consideration: how do we ensure the game retains sufficient dramatic content? The problem arises from the possibility that the players will fail to do interesting things causing the game to dissolve into boredom. Or perhaps they'll engage in overdramatic nonsense – dashing from murder to seduction to dragons to space aliens. As yet I see no decent solution.

Nazis and dorks

Since the players provide so much of the game's content, quality control of participants is crucial to the overall entertainment value of the game. But how do we exercise quality control over the people who are paying the bill? If a particular player prefers to play as a nazi, constantly shouting, 'Heil Hitler!', what can be done to protect the more normal players from this person's bad taste? In the same fashion, if one of the players is simply a dork, how can other players be asked to cope with him?

This is a delicate problem, because it involves evaluation of the personal merit of individuals, but it is not a new one. We all have to organise our social lives in ways that maximise the probability of running into interesting people and minimise the probability of running into unpleasant people. When was the last time you stopped by a bowling alley, or a discotheque, or a square dance hall, or a Grateful Dead concert? In each of these social gathering places, you have a pretty good idea of the kind of people you're likely to encounter. Nobody will come right out and say that all Grateful Dead concert-goers are drug users, but

If a particular player

prefers to play a

nazi, always shouting, 'Heil Hitler!' what can be done to protect normal players?

of play. Short games just can't get into interesting territory. A great many human relationships derive their impact from the context in which they take place. You need to build up some interpersonal history before your interactions with others can become deeply interesting.

The time-sequenced approach often breaks the game down into daily turns. All the players read their news of the day and then enter their moves for the next day. At 5am the central computer processes all the moves and posts the results. Because players need only check in once per day, the likelihood of their missing a move is much reduced. On the other

different areas to play at the same time. Indeed, even within the continental US this presents a problem: the people on the east coast are leaving the network as the people on the west coast join. When we throw in players from Japan and Europe, the problem becomes insuperable. There is simply no way to bring large numbers of players together from all over the globe at the same time.

Of course, if the game is designed for offline interaction, using some sort of delayed response or turn sequencing, then this problem vanishes, but human interaction doesn't work like chess. Mood is just

Gaming theory

you'd have to be awfully naive to be surprised if somebody offered you a joint while you were there. By the same token, it would be crass to say that all square dancers are older people with conservative values, but if I wanted to socialise with such people, a square dance would be a great place to start.

Thus, we all know lots of rules of thumb about where to encounter what kind of people. We use that information to avoid some places and seek out others. But such information is not yet available about network sites. Indeed, if there's any generalisation you can make about those who frequent networks, it's that they're probably undersocialised male dorks. Not very promising.

Fortunately, there are some things we can do about this problem. The best solution is to introduce a 'player profile' that rates players in a variety of dimensions, such as imagination, consistency, romanticism, team-playing, anti-social attitudes, rudeness, and so on. Every time a player completes a game, his co-players are asked to rate him in each of the dimensions. Once a reasonable set of player profiles have been worked out, specialised games can be set up that have certain personality profile requirements associated with them, e.g., 'to be allowed to enter this game, you must have a romance rating of at least six, and a rudeness rating of less than two.' Even this scheme, however, is vulnerable: a group of anarchist punks could play a series of games with themselves, altering their personality profiles so that they could gain entry into whatever game they chose, where they could wreak havoc.

Our problem is that the normal methods of enforcing group expectations on individuals break down in the network environment. If I were to wander into a gay bar and loudly start telling ugly jokes about homosexuals, I'd be asked to leave, or perhaps I'd get beaten up.

But there are no such options available in a group environment online. My guess is that, until network environments provide the majority with the power to enforce sanctions against individuals, social groups will not be able to prevent anarchist troublemakers from intruding on their fun.

Group Size

Another issue in network interpersonal games is the problem of

establishing the ideal group size. Social interaction is a tricky business. If too few people are involved, the interaction becomes inflexible, while if too many are thrown together, the group becomes socially unmanageable. Unfortunately, the ideal size depends largely on the people involved. Some groups will function quite well with one or even two dozen members; others will fall apart with more than five. Unfortunately, there's no way to predict the outcome of group size. My guess is that we'll have to start out with the classic seven-person interaction and then figure out ways to modify it.

Free text or regulated inputs?

The question of free text or regulated inputs is a crucial and difficult one. Should the players be allowed to interact via freeform text or should communication be regulated through a standard interface language? The former approach gives them the freedom to pursue any options whatsoever, to interact in a wide variety of ways, but it suffers from the ability of troublemakers to mess things up for others. In general, I see this problem as minor. However, the regulated input approach has the additional strength that it can allow the computer to control some form of reality. That is, regulated inputs can permit the computer to keep track of variables and ensure that actions are in accord with some notion of reality.

Of course, free text and regulated inputs are not mutually exclusive; it's easy to include both the same product. The issue is more a matter of how much of the interpersonal interaction takes place through free text and how much goes through regulated inputs. A good example is provided by *Habitat*, which mixed some free text with some regulated input. The reassuring result was that social groups formed and

condition. Some people are richer, some people are smarter, some people are prettier. These inequalities play on human foibles to generate social conflict. Yet who would want to play a game as the ugly poor kid without any GCSEs or A levels? How do we reconcile the natural egalitarianism of the customer ('My money is just as green as his') with the dramatic necessity of inequality?

I think this problem can be resolved through a kind of karma. The very first game you play, you have no karma at all, and so you enter the game with a weakling character. However, your overall goal is to improve your karma. Thus, even though you play as an ugly, dumb, poor nobody, if you play well (whatever that means), your karma increases. The next time you play, you'll be given a character who's not quite so ugly, so dumb, or so poor. If you play long enough and well enough, you'll play as one of the 'Beautiful People'. Perhaps you'll be a fabulously wealthy, ravishingly beautiful young CEO of a major software company. Perhaps you'll get to be a really nasty bad guy with all sorts of exciting opportunities for villainy – and if you're a truly fine villain, why, your karma increases!

What this suggests is that players should be rated, not by any absolute scale of direct personal achievement, but rather by a scale of dramatic success. In other words, we don't measure a player's performance by how much money he acquired, how many 'Fame Points' he picked up, or how many 'cute chicks' he bedded. Rather, each character should be assigned a set of dramatic goals and evaluated on how well he met those goals. Thus, Lovely Nell might be rated on how well she met and married Mr. Right, while Snidely Whiplash will be judged on how many girls he tied to the railroad tracks. Lassie will be judged on how many times she gets little Timmy pulled out of the well, and Captain Kirk will get points for every time he disables a rampaging computer by making it think about a logical

impossibility. In other words, you get karma points for being true to

the character you play.

This innovation in gameplay has the additional merit that it encourages players to spend more time on your network, building up their karma so that they too can play as Scarlett O'Hara, or JR Ewing, or Spock. What a delightfully commercial concept!

Who would want to play a game as the ugly poor kid without any GCSEs?

began to establish higher rules of social behaviour.

Egalitarianism

This is a particularly thorny problem. The audience would expect to be treated as equals, yet much of the richest social interaction arises from the inequalities of the human

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Power Players

The most powerful money men, the most inspired creative minds, the most ferocious boardroom tigers – **Edge** lists the 50 most important players in the videogames industry

Behind the plethora of games that get released every month lies a 16 billion dollar industry – bigger than the movies, bigger than pop music, and growing at an astounding rate. Yet it is an industry that is still relatively young compared to other mediums like television or music.

The secret to this explosive growth could lie over the next few pages, where **Edge** reveals the top 50 players in the modern interactive entertainment phenomenon. From programming geniuses to marketing masterminds, all have been influential in the constant evolution of videogaming. While this 'honours list' endeavours to provide a cross-section of the broad range of activities in the interactive entertainment industry, inevitably, many revered figures remain absent. (Apologies in advance...)

David Braben

Title: Founder & Managing Director
Company: Frontier Developments
 Cambridge, England
Career Highlights: *Elite* (1982), *Virus* (1987)
Resume: In 1982 games were either shoot 'em ups or, frankly, primitive text adventures. David Braben's (and Ian Bell's) *Elite* changed all that for good. It was one of the very first games to feature 3D graphics, but more importantly it challenged the definition of what a computer game was. *Elite* was a sprawling epic involving strategy, thought, space-trading, but relatively little shooting and very little text. It was a complete universe built in an 8bit world. Some videogame journalists believe *Elite* is still possibly the greatest computer game ever.

At the time, however, many software houses found it too challenging. It was turned down more than once because there were no lives to be lost, no score, and no obvious start, middle, or end. But come its eventual release for the BBC Micro, it was critically acclaimed from day one. It's since been released on 16bit platforms and there have been two follow-ups, *Frontier* and the appallingly bugged *First Encounters*.

With the move to 16bit came Braben's *Virus*, a critically acclaimed 3D shoot 'em up with randomly generated levels and intelligent aliens. Few 3D games have since equalled such gameplay.



Shigeru Miyamoto

Title: Head of Software R&D
Company: Nintendo Corporate Ltd, Kyoto, Japan
Career Highlights: Creator of *Mario*, *Zelda*, and *Donkey Kong*. Creative force behind *Pilotwings*, *F-Zero*, *Super Mario Kart*. *Mario* games have sold more than 115 million units worldwide.
Resume: He's the most successful game developer in history. He has a unique and brilliant mind as well as an unparalleled grasp of what gamers want to play. In *Mario* he has created one of the most popular children's characters ever. He joined Nintendo in 1977 and designed his first arcade game, *Donkey Kong*, in 1980. In 1984 he was asked to design a game for the NES. He went back to DK and pulled out the unlikely hero, a short fat mustached plumber called Mario, to star (with newly created brother Luigi) in *Super Mario Bros*. It was what the NES was invented for and helped establish the system as the most popular console in the world. *Super Mario Bros* games have so far sold 115 million units around the world. Miyamoto's other series, *The Legend of Zelda*, is also hugely popular. His latest Super NES game, *Yoshi's Island*: *Super Mario World 2* could well be his best ever and he's already working on *Ultra 64 Mario* and *Zelda*, that will hopefully be ready for the console's launch.

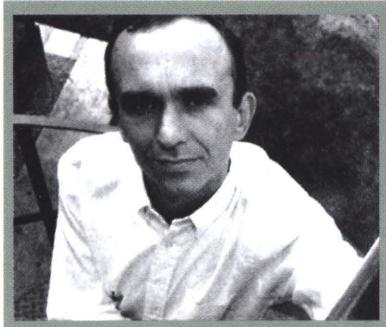
Miyamoto is arguably Nintendo's most vital employee, and it's certainly safe to say that the firm's success would never have hit such stratospheric levels without his input. A popular analogy is to describe him as the Steven Spielberg of videogaming, combining unprecedented massmarket appeal with almost unwavering critical acclaim.



Eugene Jarvis

Title: Game Director
Company: Williams
 Chicago, IL, US
Career Highlights: *Defender* (1980),
Cruis'n' USA (1994)
Resume: Having designed pinball tables for Atari in the mid-seventies, Eugene moved to Williams, got bitten by the *Space Invaders* bug and designed *Defender*, the firm's first-ever videogame. If he had done nothing else, he would still have warranted a place in any list of videogame notables – Jarvis reckons that in its time *Defender* has probably gobbled more than \$1 billion, and it remains one of the most playable games ever to hit an arcade. Pity that Atari (bless 'em) have just sunk a ton of nails into *Defender*'s coffin with Jeff Minter's ill-conceived Jaguar update (see page 73).

In 1994, however, Jarvis added to his legacy with the launch of *Cruis'n' USA* – an underpowered but engaging homage to *Out Run*. He's currently overseeing the development of an Ultra 64 game by Williams' San Diego team, a game that is destined to become one of the key titles for Nintendo at launch. Jarvis is also currently working on a sequel to *Cruis'n'* which will hit arcades next summer (and probably Ultra 64 by Christmas '96). He has no plans to move over to home videogame development but his designs and concepts will no doubt be translated into some of the hottest games of the next generation.



Peter Molyneux

Title: Founder and Managing Director
Company: Bullfrog Productions
 Guildford, England
Career Highlights: *Populous*, *Theme Park*, *Magic Carpet*, *Syndicate* and *High Octane*
Resume: Since its formation in 1987 Peter Molyneux's Bullfrog has earned a reputation as one of the most consistently innovative and imaginative development teams in the world. Its first title, *Populous*, created a whole new genre, the 'God' game. Standards have hardly slipped since – *Theme Park* was many critics' Game of the Year in 1994.

All of Bullfrog's titles have so far been published by Electronic Arts, and earlier this year the ties between the two were made permanent when the publisher bought the developer in a deal thought to be worth around \$40 million. Peter Molyneux remains, however, very much the man at the helm.

Sid Meier

Title: VP Development
Company: Microprose
 Hunt Valley, MD, USA
Career Highlights: *Pirates* (1983), *F-15 Strike Eagle* (1985), *Railroad Tycoon* (1990), *Civilization* (1991)
Resume: Meier was an original co-founder of MicroProse back in 1982, but has never made the move upstairs to corporate-ville. Instead, he remains a prolific developer of some of the best games in this veteran publisher's catalogue. Meier's first hit project was *F-15 Strike Eagle* (a title from which spun a series which has now smashed through the \$1 million sales barrier). His most respected achievement, however, was the release of build-your-own-empire title *Civilization* in 1991 which still demands serious time from strategy gamers the world over. Civ's 1994 sequel, *Colonization*, was also successful and *Civilization for Networks* arrived on shelves in late 1994.

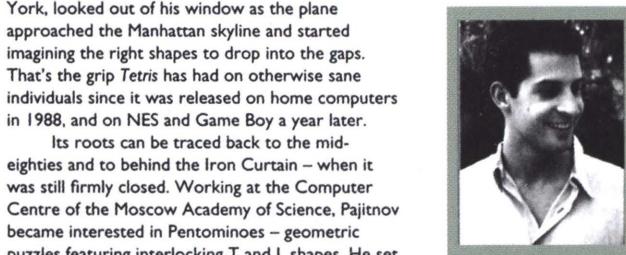


Alexei Pajitnov

Title: Game Designer
Company: Spectrum Holobyte
 Alameda, CA, US
Career Highlights: *Tetris* (1988)
Resume: For many people, *Tetris* is the most playable game ever created. One famous *Tetris* addict, a business man flying from London to New York, looked out of his window as the plane approached the Manhattan skyline and started imagining the right shapes to drop into the gaps. That's the grip *Tetris* has had on otherwise sane individuals since it was released on home computers in 1988, and on NES and Game Boy a year later.

Its roots can be traced back to the mid-eighties and to behind the Iron Curtain – when it was still firmly closed. Working at the Computer Centre of the Moscow Academy of Science, Pajitnov became interested in Pentominoes – geometric puzzles featuring interlocking T and L shapes. He set about creating a computer version and called it *T and L Shapes*. He distributed it amongst all his colleagues and it became massively popular throughout the Academy and, soon, in offices all over Moscow. Word spread to the West and it sparked the most desperate and protracted scramble for the rights to any game ever produced.

Nintendo, perhaps inevitably, won the day. *Tetris* has since become the most popular Game boy title of all time and undoubtedly helped the handheld achieve its incredible popularity. Pajitnov now lives and works in the US where he is contracted to Spectrum Holobyte.



John Romero

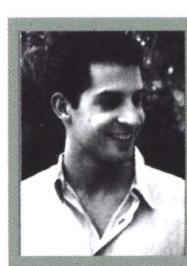
Title: Co-founder and Game Designer
Company: id software
 Mesquite, TX, US
Career Highlights: *Doom* (1993)
Resume: As the designer of id's *Doom*, Romero has arguably done more than anyone to establish the PC as a truly all-round games machine. No longer is the PC considered a home for worthy flight sims or adventure games.

Doom was written around a breakthrough 3D graphics engine and, using first-person perspective, it placed players in as action-packed a combat game as has graced any console. It's impossible to calculate how many people have played *Doom*, as it was available exclusively on shareware long before it came to retail and is almost certainly the most pirated game of all time.

Retail versions are also available on PlayStation, Jaguar, SNES, Mac (*Doom 2*), and 32X. Ultra 64, 3DO, and Saturn versions are currently in development. Back on the PC there's already been *Doom 2* (1994) released at retail. A third and similar game in the series, *Raven's Hexen*, is available in shops. But the real excitement is building up for next year's release, *Quake*, which will introduce an all-new id graphics engine.

Dave Perry

Title: President & Lead Programmer
Company: Shiny Entertainment
 Laguna Beach, CA, US
Career Highlights: *Earthworm Jim 1 & 2*, *Aladdin*, *Cool Spot*, *Global Gladiators*
Resume: An 'all-round nice guy', single-handedly responsible for some of the 16bit platform's finest hours, the rise of Virgin, and the renaissance of Disney's fortunes (well, almost). Gearing up for an assault on the 32bit world, he has gathered some of the most outstanding game creators the world has to offer (when he can get them off the beach). Recently sold out to Interplay for loads of cash.



Perry often seems to benefit and suffer from a game press who seemingly can't hype him or his products enough. Is all the hype justified? Well, probably not. But that's not the point, the fact is that the press and gamers love him. **Edge**'s opinion as to Perry's PR secrets? Always return phone calls, don't make promises you can't keep, and show a genuine interest in whomever you're talking to. Sounds easy? So how come hardly any actual PR people (let alone presidents and lead programmers) in the industry do the same?

Continued next page

Tim Schafer

Title: Project Leader, LucasArts
Company: San Rafael, CA, US
Career Highlights: *Secret of Monkey Island*, *Secret of Monkey Island II*, *Day of the Tentacle* and *Full Throttle*
Resume: For any company looking to enter the interactive movie scene, Tim Schafer has been making them for years. Except his are compelling, funny, addictive, challenging, and interactive. They also cost ten times less to make than the majority of FMV crap that's churned out annually.

Schafer got his break when LucasArts needed creative minds to work with SCUM, the proprietary language in which LucasArts graphic adventure games are written. Tim Schafer, who had recently graduated from college, was selected as a 'SCUM-let' (ie one who works with SCUM).

He began as an assistant designer working on *The Secret of Monkey Island*. Two projects later Schafer and Dave Grossman (another programmer) were allowed to build their own game. They created *Day of the Tentacle*, with Schafer being responsible for writing and design. Tim's first solo piece - 'I did it all on my own with about 30 other people' - was *Full Throttle* (scoring nine out of ten - see E22). He both designed the game and wrote all of the dialogue.

Tim & Chris Stamper

Title: Joint founders & Managing Directors
Company: Rare
 Warwickshire, England
Career Highlights: *Killer Instinct*, *Donkey Kong Country*, *Knight Lore* (1983), *JetPac* (1981)
Resume: Rare is perhaps the only company in the world who could claim to be vital to the mighty Nintendo. So vital that Nintendo forked out millions to buy a 40% share in the developer earlier this year, ensuring continued support for all its formats.

When the Stamper brothers first entered the game business in the early eighties, it was as a publisher called Ultimate Play The Game, developing classic titles such as *Knightlore* for 8bit computers. But as the NES took off, the switched-on Stampers set up a new division, Rare, to reverse engineer the hardware and produce carts for it - even without a license. Nintendo initially frowned on such rogue activity but when it saw the end product it was impressed enough to make Rare the first western company with an official developer's license. The Stampers abandoned publishing, concentrated on development, ditched the Ultimate name, and established Rare as the whole company.

It has since produced more than 90 NES, Game boy or Super NES titles. There's no doubt, however, that Rare reached a new level of success in developing *Donkey Kong Country* for the SNES. This was a massive leap forward for 16bit gaming and has become the fastest selling videogame of all time. Global sales currently stand somewhere north of 7.5 million units. In 1995 *Donkey Kong Land* hit the Game boy and *Diddy Kong's Quest* (DKC2) appeared on the SNES early this year.

Rare was the first development house signed up by Nintendo for its U64 'Dream Team'. A new version of *KI* should be ready to launch.



Chris Roberts

Title: Executive Producer
Company: Origin
 Austin, TX, US
Career Highlights: *Wing Commander* series (original published in 1989).
Resume: Flight sims are a large slice of the staple diet of most PC gamers. For many, however, *Wing Commander* kickstarted the PC's presence in the games industry. The game first appeared in 1989 and to date more than 2 million *Wing Commander* games have been sold worldwide. The latest version, *Wing Commander III: Heart of the Tiger* has already chipped in with more than 500,000 since its release just before year's end '94.

Roberts remains very much at the head of all *Wing Commander* development, and therefore in charge of one of the largest development budgets in the gaming world. *Wing Commander IV* is due out in March and it's a safe bet that it will be another top notch addition to one of the most enduring and respected self-created franchises in the gaming industry.

J W 'Wild Bill' Stealey

Title: Chairman
Company: Interactive Magic
 Raleigh, NC, US
Career Highlights: Co-founder and former chairman of MicroProse, and fighter pilot (!)
Resume: A software salesman extraordinaire who wallpapered software stores with MicroProse games and has most recently sold several hundred thousand copies of *Apache* - the first game from Interactive Magic.

A challenge over a videogame transformed General Instrument sales man/National Guard fighter pilot Stealey into a software entrepreneur. Stealey played videogames with fellow GI employee Sid Meier and, on one occasion, Stealey bet Meier 25 cents he could beat him at *Red Baron*. He lost. 'Fighter pilots,' of course, 'don't like to be out-bragged,' says Stealey, so when Meier said *Red Baron* wasn't really a great game, Stealey challenged him to make a better one. Meier created *Hellcat Ace* and the two men quit their jobs to form MicroProse.

A fan of flight, golf, and racing simulations, Stealey insists all his games feature 3D graphics. But does he want to dabble in RPGs and adventure games? 'Bite me, kick me, throw me from an airplane,' he says he'd prefer. 'There are other big companies that do those games perfectly well.'

Yu Suzuki

Title: Chief Manager, R&D Amusement Division
Company: Sega Japan
 Tokyo, Japan

Career Highlights: *Hang On* (1985), *Space Harrier* (1985), *Outrun* (1986), *After Burner* (1987), *Power Drift* (1988), *G-LOC* (1990), *R-360* (1990), *Virtua Racing* (1992), *Virtua Fighter* (1993), *Daytona USA* (1994), *Virtua Cop* (1994), *Virtua Fighter 2* (1994), *Virtua Striker* (1995), *Virtua Cop 2* (1995)

Resume: The list of credits is incredible. Yu Suzuki and (most notably) his AM2 team are responsible for some of arcade gaming's finest hours. Although it was the likes of Namco and Atari who started the arcade phenomena, it is without question Sega who takes the credit for keeping it exciting since.

Suzuki is treated like a rock star in Japan, and rivals Nintendo's Shigeru Miyamoto in terms of following. He drives a Lamborghini Diablo and enjoys the lifestyle that his success has earned him. Often outspoken, Suzuki is never one to unnecessarily tow the corporate line ('Trying to program two CPU's has

its problems,' he groaned back in 1994, during the Saturn conversion of *Daytona USA*. 'The two CPUs start at the same time but there's a delay when one has to wait for the other to catch up. One very fast central processor would be preferable').

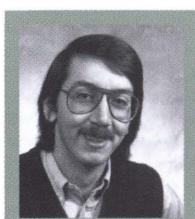
But his track record enables him the freedom to say and do as he wishes. And, luckily for Sega, this has resulted in a lifeblood of consistently killer titles. *Virtua Fighter* redefined the fighting game. *Virtua Racing* offers arguably the best arcade drive to this day. VF2 is the most graphically sophisticated arcade game in history. And Suzuki-san shows no sign of slowing down.

Will Wright

Title: Game designer
Company: Maxis
 Orinda, CA, US
Career Highlights: *SimCity* and *Raid on Bungling Bay*
Resume: Will Wright was building robots as a 'serious hobby' and going to school on and off when a friend sold him an Apple II. His first game was *Raid on Bungling Bay*, a game in which players flew over islands and dropped bombs.

'I had developed this editor to make the islands, and I found I was having more fun creating the islands than playing the games themselves,' recalls Will. This led to more sophisticated editors which led to an interest in city planning. He set up a program to test his city planning ideas, 'a guinea pig, which later became the precursor to *SimCity*'.

It's been said that there have only ever been two novels ever written, and that everything else is just a rewrite. The same maxim has been applied to videogames, and *SimCity* has to be regarded as one of the originals.



Hisashi Kaneko

Title: President
Company: NEC Corporation
Tokyo, Japan

Career Highlights: PC Engine, NEC FX, a \$43 billion global enterprise, employing 148,000 people worldwide.

Resume: Sony and NEC may appear similar, but the difference financially is \$1 billion. NEC is a huge corporation maintaining a network of 88 consolidate subsidiaries, 63 manufacturing plants, and 370 sales offices. The company manufactures and markets more than 15,000 different products in more than 150 countries. In terms of its global sales, this company ranks among the highest: second in semiconductors, third in computers, and seventh in communication equipment. Nothing to scoff at.

NEC produced the revolutionary PC Engine game system – a console which managed to steal a



part of Nintendo's market share. The almost redundant 32bit NEC FX, on the other hand, has enjoyed little success in Japan, seemingly lacking NEC's full support. But NEC's influence stretches far above and beyond its immediate videogame products. As a leading semiconductor manufacturer, the company's clout exists from the cradle to the grave of every aspect of computing.

Marty Kitizawa

Title: President
Company: SNK Corporation
Tokyo, Japan

Career Highlights: Many popular coin-ops including *Ikari Warriors* (1986), *Neo-Geo* (1990).

Resume: In 1990, SNK launched two Neo-Geo systems, the arcade Multi-Video System (MVS) and the Neo-Geo home cartridge system. Dismissing a similar Nintendo product (the Playchoice 10) as unsuccessful, SNK have proved that their six-year-old technology can still hold its own – even today new games are released for the arcade system to popular acclaim. In the home, success has been less evident with high cartridge prices curtailing the viability of the system for many years. Recently, the Neo-Geo lineage has just been joined by the latest CD version, the CDZ. New 64bit technology is planned for later this year.



Trip Hawkins

Title: President & CEO
Company: The 3DO Company
Redwood City, CA, US

Career Highlights: Founded Electronic Arts (1982). Founded The 3DO Company (1992).

Resume: Hawkins is a visionary. In 1982 he founded Electronic Arts and through faultless handling of the most creative people in the industry produced a string of quality products that put EA at the top of computer game development. But Hawkins had made a poor call. He'd seen Nintendo as an insignificant fad and had chosen not to develop on carts. He also hated the strict terms and conditions that console companies imposed on third party publishers. By 1990 the sheer size of the business he was shunning forced him to change his tune. The firm adapted brilliantly to the demands of the console audience and titles such as *John Madden Football* and *Desert Strike* established EA as one of the biggest videogame publishers in the world.

In 1991 Hawkins unveiled a new vision: 3DO. The intention was to establish a global standard for CD-based gaming. Hawkins insisted it would be an open platform for all developers and publishers, free from the restrictive licensing agreements that had irked him so much at EA. Despite incredible hype and huge ambition, 3DO has failed to grasp a mass market. Global sales stand at around 750,000, with 300,000 sold in the US. Matsushita acquired the rights to its successor, M2, due late 1996.

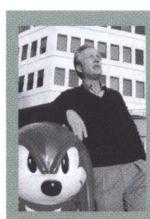
Tom Kalinske

Title: President
Company: Sega of America
Redwood City, CA, US

Career Highlights: Took on Nintendo and won – sort of.

Resume: When Kalinske joined Sega in 1990, he was said to have the best job in the industry – to try and beat Nintendo. If he failed, well – no-one beats Nintendo. If he succeeded, he'd have pulled off one of the great business coups of the eighties. He succeeded.

And he did it by getting in first, being ultra-competitive on price, offering upgrade paths, dragging videogaming (kicking and screaming) through the doors of ad agencies and introducing the world to *Sonic the Hedgehog*. Kalinske's Sega is generally considered to have taken a larger slice of the 16bit market than Nintendo at a time when the 16bit market went ballistic (late eighties/early nineties).



Sam & Jack Tramiel

Title: President (Sam) and Chairman (Jack)

Company: Atari Corp, Sunnyvale, CA, US

Career Highlights: Took over Atari (1984). Launched Jaguar (1993). Successfully negotiated a large legal settlement from Nintendo (early nineties). Successfully negotiated a large legal settlement from Sega (1994).

Resume: When Jack Tramiel bought Atari in 1984 from the Time Warner group, the videogame bubble had burst and the firm was haemorrhaging money. He steered the company from videogaming to home computing with the launch of the ST, a respected 16bit machine that enjoyed considerable success in Europe and, globally, in the professional music market. In the early nineties, with Jack ensconced in a more backseat role and his son Sam in control, the firm stepped back into the console market with the 64bit (ish) cart-based Jaguar.

The Jag is Atari's attempt to take on Nintendo, Sega (both of whom it has fought in legal battles over copyrights and alleged monopolistic business practices) and Sony in the next generation marketplace. While being held back by smaller financial muscles and a desperate lack of immediate third party software support, the Jaguar has nevertheless sold more than 150,000 machines worldwide and the price has recently been slashed to a competitive £99.

After nearly 25 years in the business, Atari now faces its toughest period yet. A recent internal shakedown has forced pundits to speculate about the future of the company.

Olaf Olafsson

Title (previously): President

Company: Sony Interactive Entertainment
New York, NY, US

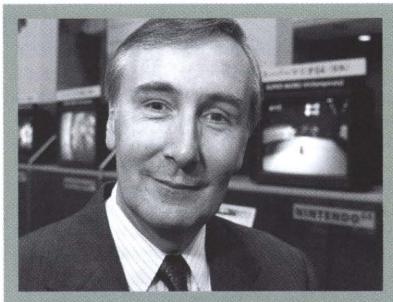
Career Highlights: Oversaw the launch of PlayStation in the US and Europe (1995).

Resume: Olafsson recently parted company with the \$44 billion Sony Corporation, having previously been in immediate charge of all PlayStation and Sony software development activities in the US and Europe, and reporting to Mickey Schulhof, the president & CEO of Sony Corporation of America. He was even at the forefront of Sony's videogame interests back in 1991 when the SNES-based PlayStation was first announced at the summer CES. 'They stabbed us in the back,' was how the forceful Icelandic reacted to Nintendo's subsequent counter-deal with Philips.



It was Olafsson who oversaw the \$48 million acquisition of Psygnosis, set up the US PlayStation operation and arranged for Michael Jackson to attend the PlayStation party at the E3 in LA last May. With Olafsson's departure following the recent exits of SCEA head honchos Steve Race and Marty Homlish, it remains to be seen who will get to flex Sony's not inconsiderable muscles.

Continued next page



Howard Lincoln

Title: Chairman
Company: Nintendo of America
Seattle, WA, US

Career Highlights: More than a third of all US homes have a Nintendo machine. (Bizarre fact: in 1954 Howard Lincoln was the model for a painting by US artist, Norman Rockwell).

Resume: In 1985, when Nintendo entered the US home videogame market, there was no home videogame market, just the spectacular boom-and-bust remnants of an industry that had left everyone wary. With Lincoln and Yamauchi's son-in-law Minoru Arakawa at the helm and the odds stacked against them, NoA brilliantly laid the foundations for the sprawling, multifaceted beast that now likes to be known as the interactive entertainment business. Yes, Sega worked wonders on 16bit and Sony's looking hot, but it all began with Arakawa, Lincoln, and Nintendo.

Hayao Nakayama

Title: President
Company: Sega of Japan
Tokyo, Japan

Career Highlights: Beat Nintendo to the 16bit market and despite a lack of success in Japan, managed to conquer Europe and build an unrivalled arcade empire.

Resume: Although Sega's biggest successes have been outside Japan, both the US and European Sega operations ultimately report back to the Sega Enterprises HQ in Tokyo. It's in Japan where the majority of Sega's hardware development, cartridge manufacturing, and perhaps most importantly, key software development takes place. Sega's arcade division is very much the creative engine room of Sega's success, and it's a little known fact that the blue hedgehog who took the European 16bit world by storm originally spoke in Japanese.

Mr Nakayama still takes a very active role in Sega's day-to-day activities. It's rumoured that he personally stormed to the consumer research and development departments to chastise his team after first hearing of the power of Sony's PlayStation. And despite the success of Kalinske's US operation and the similar success enjoyed by Sega Europe under Nick Alexander, Sega remains a company with its roots very firmly in Japan.

Hiroshi Yamauchi

Title: Chairman of Nintendo Company Ltd
Company: Kyoto, Japan

Career Highlights: Nintendo has sold close to 150 million game machines around the world.

Resume: When Yamauchi took over Nintendo in 1949 it was just a Japanese playing card

manufacturer selling to its domestic market. He transformed it into a global videogame giant with revenues of \$416 billion (year ending March 31, 1995). His company single-handedly rescued the videogame business from the wreckage of the mid-eighties crash (when Atari was at the

wheel). Its taking of America was nothing short of genius. Yamauchi has been the mastermind behind every important move and, at 68, remains very much in charge. When the time eventually comes, replacing him will be one of Nintendo's toughest challenges.



Teruhisa 'Terry' Tokunaka

Title: President
Company: Sony Computer Entertainment

Tokyo, Japan

Career Highlights: Masterminded Japanese launch of PlayStation.

Resume: From a standing start, Terry Tokunaka has managed to race to the front of the pack in the toughest videogaming market in the world, that of Japan. The PlayStation is currently neck-and-neck with Saturn (actually, both machines are winning – depending on whom you talk to) with installed bases of well over a million units and climbing fast.

It was Tokunaka who announced to the world the release details of PlayStation in October of last year, revealing that PlayStation would launch within a week of Saturn, and at a significantly lower price. It was Tokunaka who installed the innovative system of bypassing Sony's traditional distribution channels in Japan and selling PlayStations direct to retailers – thus cutting the grey import business to minimum. And it is Tokunaka who has continued to steer the progress of what many industry analysts regard as Sony's most successful launch since the Walkman.

Tom A Jermoluk

Title: President & CEO

Company: Silicon Graphics Industries
Mountain View, CA, US

Career Highlights: SGI signed deal with Nintendo in 1993 to develop internal technology for Ultra 64. Is the computer industry's pre-eminent provider of development hardware.

Resume: When Tom Jermoluk joined Silicon Graphics in 1986, he probably didn't expect to make game systems. With an MSc in computer science from Virginia Tech, USA, Jermoluk's first project was to help design a new CPU and bus architecture for workstation-class hardware. Jermoluk's foray into electronic games began in 1992, with the development of the Reality Engine, a version of which would later become the heart of Ultra 64. The partnership with Nintendo was inked in early 1993 (it's no secret that Silicon Graphics' technology had been presented to a number of other game hardware manufacturers) and the deal became public that August.

Ultra 64 (for the moment at least, however) is simply the tip of the iceberg. Silicon Graphics provides the best development tools for the world's interactive entertainment, special effects, and CAD industries. The company is now also an active game developer working in conjunction with rocket scientists, among others.



Bill Gates

Title: President

Company: Microsoft
Redmond, WA, US

Career Highlights: Launched MS-DOS Operating System in 1981. It is now installed in more than 120 million PCs. He launched Windows in 1983. It is now used on more than 50 million PCs. Sometime around 1994 he became the world's richest man.

Resume: Gates founded Microsoft in 1975 and has built it into the biggest software company in the world, as integral a part of the PC market as it is possible to be.

Windows '95 was launched in August last year and the firm expects to sell more than 50 million copies in the first year. More significantly, the launch of Windows '95 sees the firm focusing on games like never before. The new environment has been created with game developers and players specifically in mind and all the major PC leisure publishers in the world are planning Windows '95 versions of old and new games.

Microsoft itself is bringing out genuine arcade-style games such as *Hover Hawk* and *Fury*. It's also created a new division called Gamebank dedicated to developing and publishing Windows '95 games. The very best firms in the Japanese arcade industry (Namco, Capcom, Taito, SNK, and others) have already agreed to license their next batch of titles. Gates realises that games aren't just a slice of the PC pie, they're global growth.

Michael Spindler

Title: President and CEO

Company: Apple

Cupertino, CA, US

Career Highlights: Macintosh is the second most popular computer format in the world.

Resume: Having begun with Apple Computers in 1980 as the marketing manager for European operations, Spindler has seen considerable international experience.

Apple spokespersons are quick to point out their computer's superiority in multimedia, they do not think of their system as a game platform. Dataquest rates the Macintosh the number one multimedia development platform and ranks Apple as the leading personal computer vendor worldwide. However, the firm's Pippin 'multimedia player' – a TV plug-in console based on a 66 MHz PowerPC 603 chip – is unlikely to become a significant (that is, PlayStation-troubling) game machine. The Pippin technology is set to debut in Bandai's Power Player, due for release early this year. As shareware gaming continues to proliferate for the Mac platform (as some killer games like Aperion and PegLeg become more available), games are only becoming a more significant part of Apple's domain.

F A Maljers

Title: Chairman

Company: Philips

Eindhoven, Netherlands

Career Highlights: CD-i (Edge uses the word 'highlight' loosely). Abortive deal with Nintendo to produce a CD-ROM drive for Super NES. Consumer electronics giant.

Resume: Philips, much as Sony did before the launch of PlayStation, has been stalking the game industry like a hungry predator – without much tangible success to date. CD-i started life as an ahead-of-its-time multimedia player, but ended up an under-powered games machine. The controversy surrounding the deal with Nintendo is legendary (both Sony and Philips announced they had secured the lucrative deal to produce the peripheral on the same day at CES in 1991). As it turned out, neither plan reached fruition, and both Philips' and Sony's ambitions to enter the home videogaming market remained unfulfilled.

Philips has to remain a major player in the home gaming business however, simply by virtue of its size and muscle within the consumer electronics industry. The company's CD-ROM technology also leads the world with its disc compression advances.

Yoichi Morishita

Title: President

Company: Matsushita

Osaka, Japan

Career Highlights: Initial investor in The 3DO Company. Produces 3DO MultiPlayer. Owns MCA (which in turn owns a slice of Interplay).

Resume: Matsushita (the parent company of Panasonic) is the biggest consumer electronics company in the world.

Matsushita is much more than a simple electronics manufacturer like Lucky Goldstar. It is also a prominent developer of technology and has fingers in all sorts of pies all over the world, creating an entertainment empire that has an often intangible affect on the interactive entertainment industry at all stages of software and hardware production.

One of the initial investors in The 3DO Company, Matsushita now stands in a formidable position heavily armed as the sole licensor of the 64bit M2 technology and with a host of Japanese partners rumoured to be keen on joining the M2-powered DVD party.

Chris Crawford

Title: Freelance Game Developer
Santa Clara, CA, US

Career Highlights: Founder of Computer Gaming Conference

Resume: Everybody in the US game development community knows who Chris Crawford is, although it's a near certainty that his name won't be found on the credits of many games. Crawford has been lurking on the fringes of the game community for a number of years, and he is regarded as a genius, has

been, or saviour of gaming. Everybody has an opinion.

He first made his name as a programmer of 14 titles starting from back in the early 1980s (such as 1985's *Eastern Front* for the Atari 800) and the author of four important books on

game development. In these early days he started an informal get together in his home for a group of his game-developing friends, an annual meeting of minds and seminars that grew into the Computer Game Developers Conference. For various reasons, Crawford has slowly been ousted from the CGC's Board of Directors, and made his final (official, at least) appearance at the meeting last year.

Crawford is often outspoken, he usually holds an opinion contrary to the mainstream, and is usually a thorn in the side of any big game company seeking to wow an audience with its hot new technology. Dismissing the majority of interactive software currently on release as 'airy foam' at this year's CGDC, Crawford is a good old-fashioned game man. He believes in gameplay, not in graphics. And – surprising as it may seem – he is one of the few people in the industry to shout about it, and is never afraid of being branded a Luddite.

His beliefs are also perhaps at the heart of his professional problems. A text-book example of the one-man programming team, Crawford has struggled to apply his considerable talents to a team unit. But as the days of the one-man team fade, let's hope Chris Crawford stays alive and kicking.

Nolan Bushnell

Title: Founder

Company: Atari

Sunnyvale, CA, US

Career Highlights: Invented arcade gaming with *Pong* (1972), launched Atari 2600 home console in 1978. It sold more than 20 million units.

Resume: Bushnell invented the videogame business the first time around. *Pong* (1972) was the first hit arcade game and the 2600 was the machine that led the late seventies home-game boom. He founded

Atari in 1972 for \$500 and sold it to Time Warner in 1977 for \$28 million. A year later,

however, he left Atari (with pay-off and non-competition clause), unable to cope with the corporate

constraints of such a huge company. For the next three years, while the 2600 was at the heart of what became a multibillion dollar industry, Bushnell built up the 278-strong Chuck E Cheese pizza restaurant chain in the US (it later went bust). He continued to watch as the game business in general (and Atari in particular) self-destructed, producing ridiculous amounts of crappy games. In 1983 Atari was responsible for Warner losing \$283.4 million in one quarter. Bushnell later re-emerged convincingly as an evangelist for Commodore's ill-fated CDTV.

In Autumn he will open the first E2000 Entertainment Centre in California. Covering nearly 40,000 square feet, it will feature myriad interactive attractions. There will also be Future Sports, combining elements of videogames and athletics.

Bushnell also, incidentally, turned down the chance to be a partner in Apple when it was just two kids (Jobs and Wozniak) designing prototypes in their garage.



Martin Alper

Title: President

Company: Virgin Interactive Entertainment
Orange County, CA, US

Career Highlights: Founded VIE (1983), sold a 90% stake to the Blockbuster group for \$165m (1994).

Resume: In 1983 Alper and friend Frank Herman (later to be Sega's European boss) set up a company called Mastertronic, which banged out two or three £1.99 cassette-loading games a week to a market of machines such as the C64 and Spectrum.

Mastertronic sold out to Richard Branson's Virgin group, and Alper moved to the States to set up the US office, which (along with a London-based European HQ) has driven VIE to rise from the ranks of the also-rans to stand alongside EA as one of the most successful game publishers in the world. Most recently, Blockbuster bought a 90% share in the company, providing a massive cash injection as well as affiliation with the movie and TV divisions within the entertainment giant's Spelling group.



Power Players

Jonathan Ellis & Ian Hetherington

Title: Joint Managing Directors

Company: Sony Interactive Entertainment
Liverpool, England

Career Highlights: *Shadow of the Beast* (1988), *Lemmings* (1991), sold out to Sony in 1993, *Wipeout* and *Destruction Derby* (1995)

Resume: The company formerly known as Psygnosis made its name in the mid-eighties as one of the most imaginative and adventurous software houses publishing for home computers such as Atari's ST and Commodore's Amiga. *Shadow of the Beast*, released in 1988, was hailed by critics as a landmark and cemented the firm's reputation as a publisher that operated at the cutting edge.

That all changed, however, with the release of DMA's *Lemmings* in 1991. It wasn't a breakthrough in technological terms, but the gameplay was stunningly original and amazingly addictive. So far, the original and subsequent sequels have sold more than 4 million units around the world. In 1993 Ellis and Hetherington sold out to Sony, making Psygnosis a part of the Sony Electronic Publishing division, and have been involved in formulating the strategy behind the European launch of PlayStation. They remain, however, very much in charge of game development. In August the company changed its name to Sony Interactive Entertainment. It will undoubtedly emerge as one of the most prolific and innovative supporters of PlayStation – according to SIE, forthcoming titles, *Tenka* and *FI* will show that *Ridge Racer* and their own *Wipeout* are yesterday's news (see E29).

Brian Fargo

Title: Founder & CEO

Company: Interplay
Orange County, CA, US

Career Highlights: Founded Interplay in 1983. *Battlechess* (1987). Sold minority stake to the MCA/Universal group in 1994.

Resume: Fargo is possibly the only CEO of a major game software house who writes games. His latest project, *Stonekeep*, has swallowed the last four years of his life and was finally released on CD-ROM last November. Within the company it is referred to as 'Brian's baby'. His devotion to gaming and struggle for perfection permeates the whole company and, it has to be said, pushes details such as release dates well down Interplay's agenda. More often than not, however, players and reviewers agree that the product is worth the wait. The giant MCA/Universal corporation was impressed enough to buy a stake in 1994. No financial details of what was surely a multimillion dollar deal were ever disclosed other than the fact that Fargo kept the majority interest. He certainly continues to set the tone.

Earlier this year the firm acquired Shiny Entertainment, the development group set up by Dave Perry (of Virgin/Disney's *Aladdin* fame) which scored a huge hit with its first title, *Earthworm Jim*. Shiny's presence looks set to add a keenly commercial edge to the Interplay group and help give the publisher as big an impact on consoles as it already has on the PC.

Greg Fischbach

Title: Chairman & CEO

Company: Acclaim Entertainment
New York, NY, US

Career Highlights: *NBA Jam* and the *MK* series.

Resume: Certainly one of the most successful publishers of videogames in the world, despite a recent fall from glory. Add the PC into the mix and the crown slips, but on consoles Acclaim has been the hit factory of gaming for the past few years.

Fischbach founded the company in 1987 publishing *NES games*. It has traditionally been a slavish follower of the massmarket formats rather than a chaser of technology. Its speciality is big, brash, overtly commercial and highly successful videogames and it's never far away from the most wanted licenses (historically: *WWF*, *The Simpsons*, *Terminator 2*. Most recently: *Batman Forever* and *Judge Dredd*). It has also been adept at taking the hottest hits from arcades into homes, *Mortal Kombat* 1 & 2 (more than 10 million sales between them) and the *NBA Jam* series shine out.

Acclaim published *Mortal Kombat III* on the SNES and MegaDrive last Autumn. Williams, the company behind *Jam* and *Kombat*, recently announced that it will be developing and publishing its own home versions of its arcade games for the next generation platforms, a move Acclaim countered by beefing up its own in-house development capabilities and its own motion-capture and blue-screen studios. It is also branching out onto CD-ROM and gearing itself up for a heavyweight assault on PlayStation and Saturn. Last year it set up a joint-venture with US cable giant Tele-Communications Inc (TCI).

Recently, however, the company has blamed a set of poor financial results (profits of just \$600,000 on revenues of \$134,000, compared to profits of \$15.9 million during the same period last year) on slow sales over the Christmas holidays and a huge stockpile of unsold 16bit carts.

Kelly Flock

Title: President

Company: Sony Interactive Studios America
Foster City, CA, US

Career Highlights: Marketing of *Sam & Max* and *Rebel Assault*. Designed *Shanghai 2*. Now in charge of Sony's game development.

Resume: Few people have seen more sides of the computer game industry than Kelly Flock. While working at Activision, he worked on the marketing of *Mechwarrior* and later designed *Shanghai 2*. He later moved to LucasFilm, later called LucasArts, to work in product development and marketing. In 1992, he took over the marketing division.

Flock now works at Sony where he has the challenging job of improving the reputation of the company formerly known as Imagesoft. He says the industry is in a state of change. 'I see myself focusing more on product. The industry's headed toward massive productions and more internal synergy. I see myself running Sony Development for a few years then taking off on my own.'

Richard Garriott (aka Lord British)

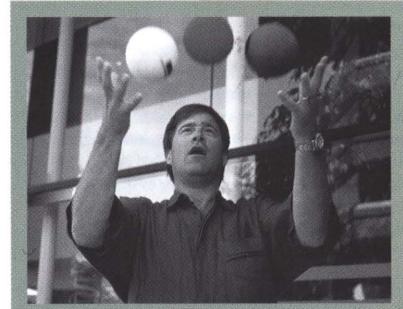
Title: Founder & Director of Development

Company: Origin Systems
Austin, TX, US

Career Highlights: The *Ultima* series.

Resume: Garriott is something of a character in the development community. He likes to be known as Lord British, holds haunted house days in his Texas mansion, and will apparently don medieval garb at the drop of a helmet.

He founded Origin in 1979 and catapulted the firm to global success with the *Ultima* series, which has become a smash hit in every major game-playing country in the world, particularly Japan where there are *Ultima* cartoons, comic books, and even pop songs. The series is now up to eight with episode nine due for release in Christmas this year. Garriott sold Origin to Electronic Arts and now has a say in a wide variety of EA's development projects but remains ultimately committed to the Origin label and the *Ultima* series.



Bing Gordon

Title: Executive VP, EA Studios

Company: Electronic Arts
San Mateo, CA, US

Career Highlights: Co-founded EA (1982). Head of EA Studio (1982 to present day).

Resume: As the worldwide head honcho of EA Studios, Gordon is in charge of the most prolific and consistently brilliant development resource in gaming. He has taken the firm from pioneering on the PC to massive commercial and critical success on consoles and now onto CD-ROM and into the next generation. He is still a huge influence on EA's output, working closely with the producers of each and every title. EA's reputation for being not just the biggest but the best games publisher in the world can be attributed to Gordon's presence from day one.

Joel Hochberg

Larry Probst

Title: President & CEO
Company: Electronic Arts
 San Mateo, CA, US
Career Highlights: Joined EA in 1984 as VP of sales and distribution. Promoted to top slot in 1991.
Resume: Simply, Probst is the boss of the biggest publisher of interactive entertainment in the world. He took over as president when the firm's founder, Trip Hawkins, decided to go and chase the dream with 3DO. The worry was that with Hawkins would go the creative urge and entrepreneurial spirit that defined the company. Four years later EA is still at the top of the tree. Probst may not be as colourful a character as his predecessor, but he does seem adept at combining the freedom and daring of creativity with the restraints and common sense of a commercial operation.

Ken Kutaragi

Title: Director R&D Division
Company: Sony Computer Entertainment
 Tokyo, Japan
Career Highlights: Designed Sony's PlayStation chipset.
Resume: Ken Kutaragi has been with Sony for more than 20 years, and he first dipped his toe into the world of videogames when he designed the abortive Sony CD-ROM add-on for the SNES. The PS-X PlayStation project gave him his second chance to create the ultimate games machine, however, and many people around the world would say without doubt that he has succeeded.

'The objective was a high-performance, low-price videogame system which also had a design that was easy to write games for,' reveals Kutaragi. 'The technology came from an original idea to create a synthesiser for graphics; something that takes a basic graphic and then adds various effects to it quickly and easily.'

Work on the project didn't entirely go without schedule-induced incident, however. 'At the peak we stayed up all night for several nights in a row. We couldn't stop working because our work was so interesting. The only problem was that our office in Alasaka didn't have a bath in it. One of our employees didn't wash for more than two weeks!'



Title: President
Company: RARE & Coin It, Co.
 Miami, FL, US

Career Highlights: Veteran arcade mogul. First non-Japanese recipient of investment from Nintendo. Created more than 60 8bit NES games. Sold over 7 million 16bit cartridges in 1994.
Resume: Having been involved with coin-operated entertainment long before the birth of the

videogame industry, Joel Hochberg has seen every phase of the business. A young Nolan Bushnell contacted Hochberg in the early seventies for advice after launching a game called *Pong*.

Chris and Tim Stamper began working with Hochberg in 1979,

converting *Space Invader* arcade boards for the English market. Together, Hochberg and the Stamper formed RARE Limited, a firm which created popular titles for the 8bit Spectrum. In the eighties, Hochberg approached Nintendo's Minoru Arakawa about creating games for the NES. Rare went on to create more than 60 games for the 8bit NES and five games for the SNES including: *Donkey Kong Country*, *Killer Instinct* and *Diddy's Kong Quest*. Rare sold more than 7 million game cartridges last year and is expected to sell more than 9 million this year.

Kagemasa Kozuki

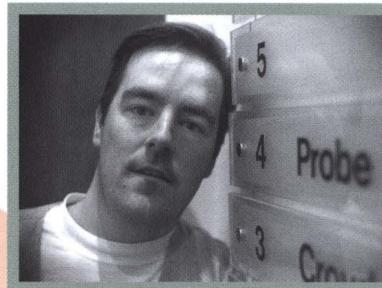
Title: President & CEO
Company: Konami
 Kobe, Japan

Career Highlights: Created a burgeoning arcade business throughout the eighties spurning classic series such as *Gradius* and *Contra*. Was Nintendo's biggest NES licensee in 1991 following the success of *Teenage Mutant Ninja Turtles*.

Resume: Founded in 1973, early Konami arcade hits like *Scramble* and *Juno First* are every bit as classic as Namco's *Pac-Man*, Williams' *Defender*, and Taito's *Space Invaders*. The company's steady success on the home platforms has resulted in a sense of pedigree that few other console-only companies can equal. Konami was one of Hiroshi Yamauchi's original Nintendo licensees, and the company benefited enormously. Konami's earnings exploded from \$10 million in 1987 to \$300 million in 1991, culminating with the runaway success of

Teenage Mutant Ninja Turtles. Kagemasa Kozuki has been with the company from the beginning, having been appointed CEO of Konami Kogyo in 1974. The company's US office reports back to Kobe, and Kozuki remains very much at the head of Konami's operations.

The establishment of a US development resource (for the production of sports games), and the promise of no fewer than 12 PlayStation games in development, would indicate that Konami's glory days aren't necessarily all behind it.



Fergus McGovern

Title: Managing Director
Company: Probe Software
 London, England

Career Highlights: Has produced more than 450 games.

Resume: Despite never having written a line of code in his life, Fergus McGovern heads the largest independent game development resource in the world. His talent is attracting and keeping some of the finest talents in the industry and working strictly to publishers' deadlines – a rarity in the game business.

Probe's speciality is turning big name licenses into quality titles. It has done excellent work over the years for its clients, notably Acclaim, Sega, and Virgin. In the last ten years Probe has produced 450 games which between them have generated \$1.7 billion at retail around the world.

Masaya Nakamura

Title: Chairman & Founder
Company: Namco
 Tokyo, Japan

Career Highlights: *Pac-Man*, *Galaxians*, *Dig Dug*, *Ridge Racer* and *Tekken*

Resume: According to Namco founder and chairman Masaya Nakamura (Namco is actually an acronym of NAKAMURA's Manufacturing COmpany) 'Play is culture.' If this is so, then Namco has spread a lot of culture, in the form of *Pac-Man*, *Galaxians*, et al.



Although founded in 1955 as the manufacturer of coin-operated children's rides, it was in the 1970s that a little yellow dot named *Pac-Man* changed Namco for good. It is now part of videogaming folklore that the engineer responsible for producing what is arguably the most popular videogame of all time was rewarded just \$3,500 for his efforts by Nakamura. The engineer left the company in disgust.

Namco's feud with Nintendo is almost as legendary. It started in 1981, when Nakamura learned the company would lose its favourable developer status to Nintendo. Now Namco is firmly allied with Sony. Wonder why.

[Continued next page]

Power Players

R J Mical & David Needle

Title: Vice Presidents & Fellows
Company: The 3DO Company

Redwood City, CA, US

Career Highlights: Inventors of the Amiga, Lynx, and 3DO.

Resume: It's true that of the machines that Mical and Needle have created, only the Amiga has been a true global massmarket hit along the lines of the NES or MegaDrive. But it's only fair to put forward

the argument that this is down to the marketing of the machines rather than the quality of the product. Take the Lynx, technically the best hand-held console seen so far, but trashed by Nintendo's

Game Boy through pricing, marketing, and software support. And 3DO, when seen four years ago, was a giant step forward – it only stumbled when the men in suits got hold of it.

Gumpei Yokoi & Masayuki Uemura

Title: Heads of R&D Nintendo
Company: Kyoto, Japan

Career Highlights: Invented Game & Watch, Game Boy and Virtual Boy (Yokoi). Created NES and SNES (Uemura).

Resume: Yokoi and Uemura were the R&D chiefs that took Nintendo into the age of interactive entertainment – and dragged the rest of the world with them. They made their name in the domestic market with gimmicky toys such as The Ultra Hand (simply a mechanical gripping device) and The Love Tester (a couple held hands while their free hands



gripped the handle of the Tester which measured how much 'love' was passing between them).

In the early eighties, inspired by machines such as Atari's 2600, the two turned to videogames. Yokoi's division (R&D 1) came up with the Game Boy and many of Nintendo's biggest software hits. Uemura's team (R&D 2, surprisingly enough) brought the NES and SNES to life. The NES remains the biggest selling game machine in history. More recently Yokoi has been behind Virtual Boy (some say blots have been introduced to copybooks for the first time). Neither were involved with the development of Ultra 64.

David Guldbrandsen

Title: Head of technological development

Company: Scavenger
 Los Angeles, CA, US

Career Highlights: Sub-Terrania (1993) and Red Zone (1994)

Resume: One of the fastest up 'n' comers in the games industry is Scavenger, an LA-based games producer with only two real hits (and especially the excellent Thrust-clone Sub-Terrania for the MegaDrive) to date. But further success is almost certainly guaranteed, looking at the company's line-up of forthcoming 32bit releases (for more details see E25 and E28).

Daniel Small, president of Scavenger, leads a

selection of talent from all over the world. Many of the Scandinavian demo coders of the early 1980's Amiga scene (a prolific strain of the hacker gene) are now employed as graphic specialists. One of these Europeans is David Guldbrandsen, who heads up the technological development for the entire range of Scavenger's titles. As head of this creative melting pot, Guldbrandsen is responsible for some of 1995's most exciting software – software that not only looks great, but actually plays great, too. *Into The Shadows*, a hi-res fighting game for the PC, *Vertigo* and *Amok* for Saturn, plus a couple of 32X titles ('The 32X is a great machine, but it just didn't happen,' argues Small) completes Scavenger's 1995 line-up, to be released in '96.

'There are people in this office for 24 hours a day, seven days a week,' explains Small. 'It's a lifestyle. This isn't a job. You don't do this kind of work if it's not your life.' But just looking at the quality of games seen so far, it would seem that Guldbrandsen's dedication is paying off.

Geoff Crammond

Title: Programmer

Career Highlights: The Sentinel, Stunt Car Racer, Formula One Grand Prix

Resume: Geoff Crammond is one of the last bastions of a forgotten era. The era of one-man programming. He is also the UK's undisputed master of 3D coding. Not just because he squeezes every last ounce of power out of a machine, but because his portfolio of games is about as admired as you can get. Designer and coder of gaming milestones such as *The Sentinel* (arguably the most engrossing, immersive 3D experience seen), *Stunt Car Racer* (one of the greatest racing games ever), the superb *F1GP* and its imminent sequel, he has an incredible ability to marry technical prowess with supreme playability. Now *F1GP2* is complete, his next project is uncertain: 'Perhaps *Stunt Car 2*, with 36 cars bobbing up and down at the same time. But that's just a possibility...'



Tom Zito

Title: President

Company: Digital Pictures
 San Mateo, CA, US

Career Highlights: The most controversial game of all time: *Night Trap* (1992). Best-selling entertainment CD-ROM of its time: *Sewer Shark* (1991). Producer of 20 FMV-based games released so far and counting...

Resume: It's a safe bet that Tom Zito's Digital Pictures will outgrow the dubious honour bestowed upon *Night Trap*, and the hollowness of *Sewer Shark*'s success (the game was remarkably poor). But notoriety and skeletons in the closet are simply the price of pioneering. Zito would no doubt say, and these two titles are a long way back in Digital Pictures' past.

Love or hate most FMV-based games (and – it has to be said – most true gamers hate them), it's impossible to deny their salability. The genre has continually struggled to justify itself through fair weather (the whole 'merging of Hollywood and Silicon Valley' hype) and foul weather (the first fruits of this ill-advised marriage). But survived it has, with many game developers just now beginning to start scaling a learning curve that Digital Pictures embarked upon five years ago.

Masayoshi Takemara

Title: Japanese Finance Minister
 Tokyo, Japan

Career Highlights: Controls the most successful economy in the world.

Resume: With Sega, Nintendo, and Sony manufacturing some, if not all, of their hardware and software in Japan, the yen is the most important currency in the global games market. When the yen is strong it costs other companies (including US divisions of Sega, Nintendo, and Sony) more money to buy goods and so prices can be forced to rise at retail. This also has a huge affect on release dates.

Earlier in the year the yen reached record levels and put great pressure on the pricing of Saturn and PlayStation. Companies were paying higher and higher pound/dollar prices for goods even though the yen price remained static. Takemara has subsequently introduced a number of measures designed to weaken the yen and so encourage trade with Europe and the US. He has had considerable success so far and the pressure is off pricing, for now, but the relationship between the pound and the yen remains vital, and Takemara remains the man in charge.

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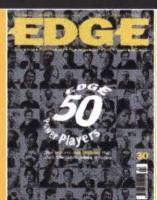
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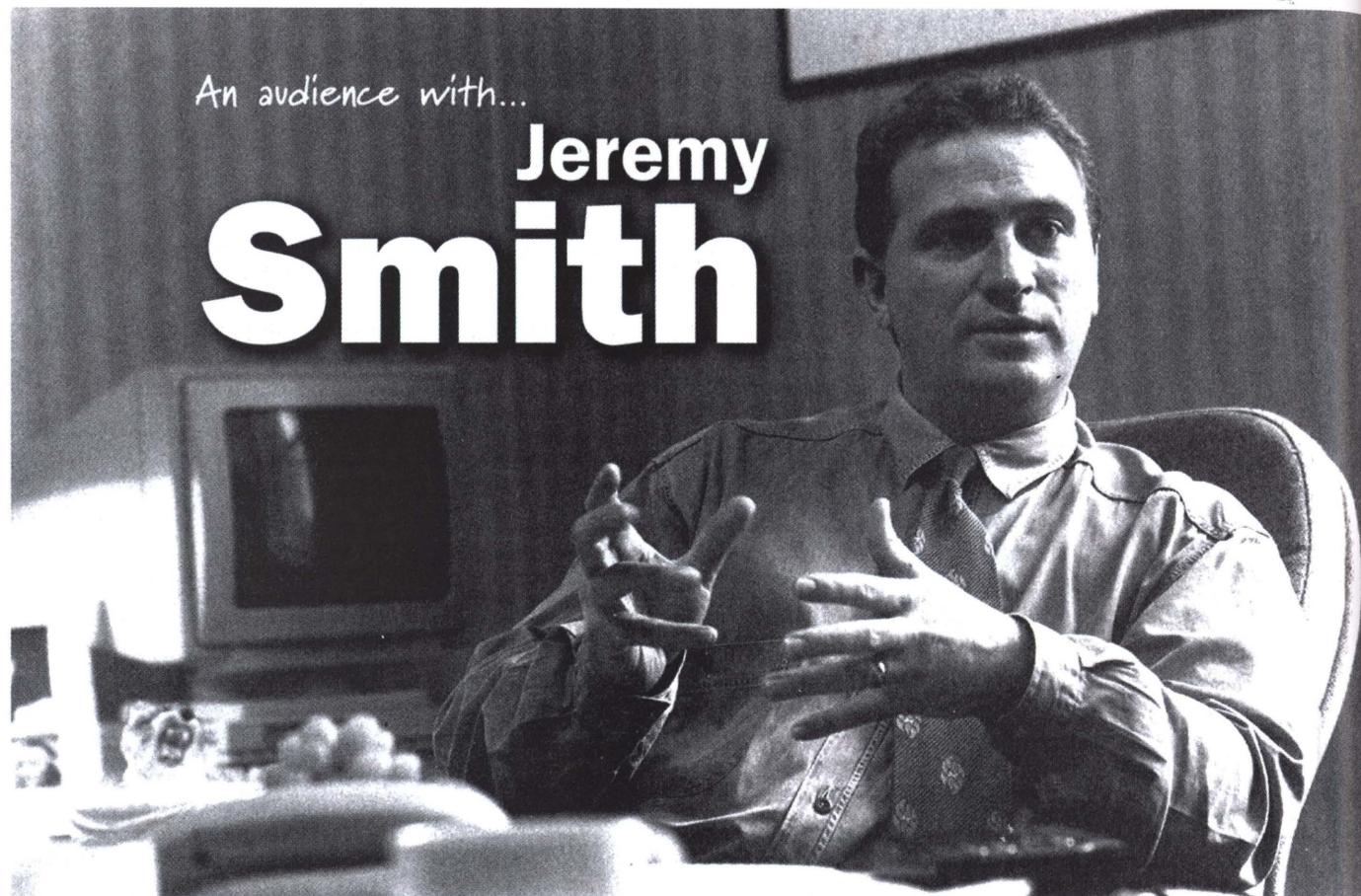
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As his company continues work on something called *Tomb Raider*, Core's MD shares his thoughts on Mario being the man, the rawness of Nintendo software, American developers' inability to create great games, Japan's total disregard for visual content, and the certainty of Sega winning the console war...



An audience with...

Jeremy Smith

After being fired from his job selling shower curtains ('I was a smartarse, a 21-year old know-it-all', he says), Core's Managing Director Jeremy Smith stumbled into the games industry. After being made redundant he landed a position selling Activision 2600 VCS cartridges. A series of jobs followed in sales and distribution, including a stint at Gremlin Graphics in Sheffield.

After a year or so at the company, an opportunity came up with a group of Gremlin programmers in Derby. They had been asked to relocate to Sheffield but didn't want to go. Thus Core Design was born in 1988, its first title being the Firebird-published *Rick Dangerous*. By 1990, Core were confident enough to publish their own games and the first, *Corporation*, was a huge success. Later hits included *Chuck Rock* and *Thunderhawk* – both games benefiting from, and strengthening, Core's close relationship with Sega.

In late 1994, Core was bought by the CentreGold group – parent company of US Gold and distributor Centresoft. Core's

first entry into the 32bit console market is its 3D helicopter shoot 'em up, *Firestorm: Thunderhawk 2* (£29). **Edge** spoke with Jeremy Smith about 32bit gaming and the war between Sega, Sony and Nintendo.

Edge Your latest game, *Thunderhawk 2*, has come right after *Air Combat*, *Wing Arms* and *War Hawk*. How does it compare to them?
JS It's flying out of the door – I think we haven't had a review under 90%. We certainly shipped in excess of 100,000 units before the Christmas break. I never really worried about *Thunderhawk* up against any competition, mainly because the success of the first one has carried through. On the Mega CD, for example, we probably got

about an 80% sell from the Mega CD userbase in Europe on *Thunderhawk*.

Edge Wasn't it the only big seller on the Mega CD, as the machine died a death?

JS It did dreadfully. All their other titles never came anywhere near it. *Sonic* did well but I think it was only *Sonic* and *Thunderhawk* that did the business, actually.

Edge What do you make of the 32X and Sega's attempts to keep its userbase?

JS The 32X was misunderstood. The 32X, in reality, is an extremely powerful piece of hardware, they just cocked it up. I mean, it's only one processor short of a Saturn, it's immensely powerful, they just didn't get that software support and the software community didn't buy into it. That was the

problem. We've got three finished 32X games which we're not even going to release, there's just no market for it.

Edge Are you planning to develop for Nintendo's Ultra 64?

JS We'd love to but we currently don't have a relationship with Nintendo. However, our parent company, US Gold, has contacts with Nintendo and I've got a trip scheduled to Japan in the next few weeks so if things go well we could start trying to build a relationship then.

Edge How do you see Ultra 64 fitting into the market?

JS It'll be a toy.

Edge Do you think it'll sell?

JS It'll be huge. Massive. But I think it'll be perceived as a toy rather than a super console because they're going to go down far more traditional toy channels where

The 32X, in reality, is an extremely powerful piece of hardware, they just cocked it up. I mean, it's only one processor short of a Saturn

Nintendo has always been successful. It's still a cartridge-based machine, too. We don't know enough technically about it, only what we've read in **Edge** and other magazines but we've certainly got no technical specifications about it.

Edge Do you think that the CD machines, by aiming for an older market, are going to have a longer shelf life than Ultra 64?

JS The two shelf lives will certainly be different. I suspect the machines will sit alongside each other but aimed at two different people. You're going to get the die-hard gamers buying Ultra 64 in order to play *Mario* but you're also going to get a new breed of consumer going for it because U64 games are very different to Saturn and PlayStation. And, of course, Nintendo will currently only let you publish the game on U64 and no other format.

As for longevity, there always has to be some form of inexpensive games console for kids, whether that's a MegaDrive or a SNES, as it currently is, or perhaps Ultra 64 in the future. Otherwise we'll return to the American situation ten years ago, where the PC market went 'whoosh', the Commodore 64 died, and everyone forgot about the kids, leaving a huge band of 8-12 year old kids wanting to spend their parents' cash?

Edge And Nintendo just swept in there?

JS Wham! They filled that hole and I'm convinced it's going to need filling again. If you look at what's happening, we're all

aiming our games at maybe the 14-plus bracket. What about the kids? Give it another two or three years and someone will plug that hole, they have to. History has a tendency to repeat itself and we're heading for that mid-eighties vacuum.

Edge Speaking of history repeating itself, there's been a lot of buy outs recently – Core by CentreGold, Probe by Acclaim and Bullfrog by EA – it was like a repeat of the rationalisation of the mid-eighties when some companies were bought up and a lot went to the wall.

JS We were still in the cartridge business, the company had expanded – we were up to 50 people. To try to sell to the public was getting very difficult, we needed a sort of strategic partner. I had a couple of deals on the table at the time but because I knew Geoff [Brown] from days gone by I went with CentreGold.

Edge What is your relationship with them? Since they lost names like LucasArts, you must be their sole big developer now?

JS Yeah, it's interesting. We still publish under Core Design but everything is a group so it all goes into a big pot. I have a reasonable amount of activity on the US Gold side but I mainly spend my time at Silicon Dreams down in Banbury working on the Olympics titles. They'll probably be the first 'A' category games under the US Gold brand to be developed in-house. So, US Gold is building up its development resources and, at the moment, Core is its main source for development in the group.

Edge So how does the set-up work? Do US Gold have creative control? Do they ask for a number of titles a year?

JS No, because my involvement in the group is quite tight – I'm on the main board now and am a large shareholder, Geoff and I work quite closely trying to steer the group through the rocky period the industry is in right now – Core hasn't really changed since the day we were bought. We're still working on the products we want to work on. We have an executive committee now where we meet and have updates on products all the time because, in the past, one of US Gold's biggest problems was weak development and therefore weak products. With bringing me on board, my single biggest strength is



having a nose for product. We had to write off a lot of product a year ago that was in development because it was crap. But it took someone else to come in and say, 'This is not going to happen.' You just have to bite the bullet.

What I don't think US Gold realised was how long it would take to get internal development running smoothly. It took Core something like five years. You can't just set up overnight and expect everything to run smoothly.

Edge Do you think that's why people have been buying name teams?

JS No question. You can't just go out and say 'There's a couple of million pounds. Let's go and buy a ton of SGs, a ton of development kits and put a big ad in *Edge* and get a load of people in.' It doesn't happen. Developers now, who have internal programmers, fight tooth and nail to keep them. We lose very few staff because we look after them very well. You have to. As far as I'm concerned artists and programmers are king as without them you've got nothing.

Edge Do the programmers and artists originate the ideas for the games at Core's headquarters?

JS Oh, all of them, yeah. All I try to do is put my knowledge of what's happening in the market. I just try and fill in the little pieces of the jigsaw before we start. I guess I have the ultimate say but I certainly wouldn't ever like to take the ultimate decision – if I'd have had my way, for instance, we'd have never done *Chuck Rock*. I personally thought the character sucked. So what do I know?

Edge Has he finally been put out to grass?

JS He has, I guess. It would be great to bring him back but the market doesn't want a *Chuck Rock* or a *Zool* or one of the other publishers' characters that we developed five years ago. It's not ready for it. Maybe for Ultra 64, but it depends on who's going to buy it.

Edge That was a classic case of bandwagon jumping, wasn't it? Everybody had their own character.

JS No question. We did have *Chuck Rock* before *Sonic*, though. We looked at *Mario*. He was the guy, wasn't he? That was the start of everything.

Edge Isn't everyone jumping on bandwagons now, though? Driving games? Fighting games?

JS Absolutely. I don't think there's any original product being written now. I think everyone is tunnelled because they're terrified of stepping over to the other side. And Core, to that extent, is no different. We've got *Tomb Raider*, which is totally



original in what it's doing with the character in full, realtime 3D, but it's still in a very safe genre. It's not a *Lemmings*, let's say. If *Lemmings* had come on my desk I'd have said 'You must be joking. I don't want that, it's no good to me.'

Edge Core have jumped around the genres a bit. You've become a jack of all trades. Perhaps a master of none?

JS There may be some truth in that. We've never tried to write a *Populous*, or a classic game of that ilk. We have gone out to write games which we think are playable, though. But, yeah, we certainly have jumped around and it's not like we've tried to find the right bed to lie in. It's a case of trying to cover all bases. Maybe the strategy is wrong, maybe we should have stuck at, say, the Sierra-style adventures but we've had a go at all of them. The only one we ever crashed and burned in was the space shoot 'em up we did – *Frenetic*. We were so envious of the Bitmaps, who'd just done *Xenon*, and we always believe we can do a game better than anyone else but we crashed and burned big style on that one.

Edge You said earlier that you think the industry's going through a rocky period now. Why?

JS Development costs are probably running at half a million dollars a title. The superleague companies, of whom I class Electronic Arts, Acclaim, and probably Virgin, are moving further and further away from the smaller codehouses. Take EA, for example – they have to be the best all-round company in the market right now.

They're so far in front of everyone else, so how do you catch them up? Looking at CentreGold as a group, we're tiny. We're a minnow in comparison to those guys so how do we go forward as a group? We've got to find new backers, a new partner to take us into the premier league. I think it's rocky because the costs of development are so high and the stakes we're playing for are massive.

Edge What are the important attributes needed to sell a good game, then?

JS It's that classic cliché, playability. These days your game has to look great but it still has to play well. The current problem is that games look great but they play like complete dogs. I think *Toshinden* plays terribly but it looks awesome. If you ask the gamer, they'd rather play *Virtua Fighter*, purely because it is more playable.



Edge What about *Tekken*?

JS I played it and I could appreciate it but it lacked – I guess – the rawness *Virtua Fighter* had. And that's what Nintendo has, Nintendo games are always raw, that's what makes them successful.

Edge So you still think Nintendo and Sega are up there at the top, even with the PlayStation making a name for itself?

JS Yeah, no question. They spend a lot of time at it. I've been fortunate enough to walk around Sega's R&D section and it's stunning. There are hundreds of people working on concepts, working on the dynamics of a car, to make sure it's absolutely right. They can just focus so

much on a game, and that's a massive advantage over everyone else.

Edge But it's money again. All that man power is expensive.

JS It's all down to the cash in hand, which is the biggest problem.

Edge Do you see a lot of differences between American, Japanese and British games design?

JS Yeah, huge amounts. I don't think the Americans can write a great playable game but they certainly put the best gloss on a game, the best polish ever. The Japanese, they write probably the most original, playable games but don't give two hoots about the graphics. So long as it plays well and it's fast, they don't really care.

The British and the European developers are catching up. But we all took a very similar decision by saying 'We can't

success with that but we finished up our projects and dived out.

Edge With the demise of the Amiga market, are you sad to see cheap home computing disappearing?

JS Yeah, totally. If you consider that the average punter only has the option of the PC now, where the minimum spec for the forthcoming batch of games has to be a P60, that's the best part of a thousand quid. You've Saturn and PlayStation which are expensive toys – games machines – they're not computers. In a couple of years, there'll be no computer for the kids to buy. The Amiga will be dead and gone and maybe some PCs will be down at four hundred pounds? Probably not...

Edge Not the spec to play the latest games, anyway...

JS No, absolutely. I think Nintendo have

take the original *Virtua Fighter* that came out on Saturn and everyone said 'Wow, this is brilliant'. Then they did the *Remix*, which was like 'Shit, this is superb'. Now you look at *Virtua Fighter 2*, it's just stunning. You look at Saturn *Virtua Cop*, I can't see the difference between that and the coin-op version.

We're finding the same here. With *Thunderhawk 2*, the technology used there is only really our first attempt at exploiting the console's power. When the team works on the next game they will have broken Saturn's back, so they'll know what it can and can't do. And all the guys here maintain Saturn's more powerful than PlayStation.

Edge Do you still have a close relationship with Sega?

JS Yeah, we're still fairly Sega. It gets very

On the next game the team will know what Saturn can and can't do. All the guys here maintain Saturn's more powerful than PlayStation

been fairly smart by saying Ultra 64 isn't a super console but a games machine, a toy, and they've always been in the toy business. Sega and Sony have seen themselves as pushing back the boundaries of technology, as did 3DO, where Nintendo have always maintained that they're in the toy business.

Edge Do you see Sony, Sega and Nintendo as the only players left?

JS Yeah. Well, apart from maybe M2. They have Matsushita involved in it and you can't write those guys off.

Edge But 3DO?

JS 3DO's a dead duck. M2 – fabulous spec machine but it's the cost. It's all cost-driven. But I suspect that Sega will join the M2 camp, or more realistically the Matsushita camp, and probably get involved in the M2 technology as well. If that happens then The 3DO Company will have some serious software, which is the only thing M2 will have a shortage of initially – serious brand software. That's why I'm still totally convinced that Sega will win the day with hardware. The software's better than PlayStation. Just take a look at *Virtua Fighter 2*...

Edge Maybe, but Sega seemed to have quite a few hiccups early on getting the software right.

JS Yeah, they unfortunately rushed it. It's second wave software that counts. You

difficult because of the current strength of PlayStation in Europe and you can't turn your back on that. We are writing specific titles for PlayStation that do use the hardware. You can't afford to be too loyal, of course, since at the end of the day we're a commercial business and our business is selling software.

Edge Is the British software industry going to change a lot over the next few years?

JS I remember Geoff Heath, who used to be my boss at Activision but now runs Mindscape, saying to me, 'It's going to be just like the book business, like the record business. There are going to be a handful of players.' He said this to me years ago and we're about there now. There are probably going to be three or four key players but I'm convinced that in two or three years time the small publisher will come back into his own. I suspect that it'll all come full circle and, like the record business, you'll have these small independent labels, all making a living.

Edge So you think the production costs will come down, that the profit margins will be there?

JS The biggest problem is that things are dominated currently by Sony and Sega and you need a huge amount of cash just to even publish a game. We need the small guys, without the small guys, the industry will choke itself.



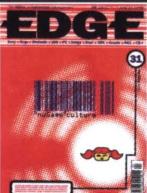
catch the Americans'. None of the UK programmers wanted to work in C rather than assembler. The PCs were slow, 386 was probably state-of-the-art then, so none of our guys wanted to touch it.

Edge And, of course, the Amiga and the ST were still big.

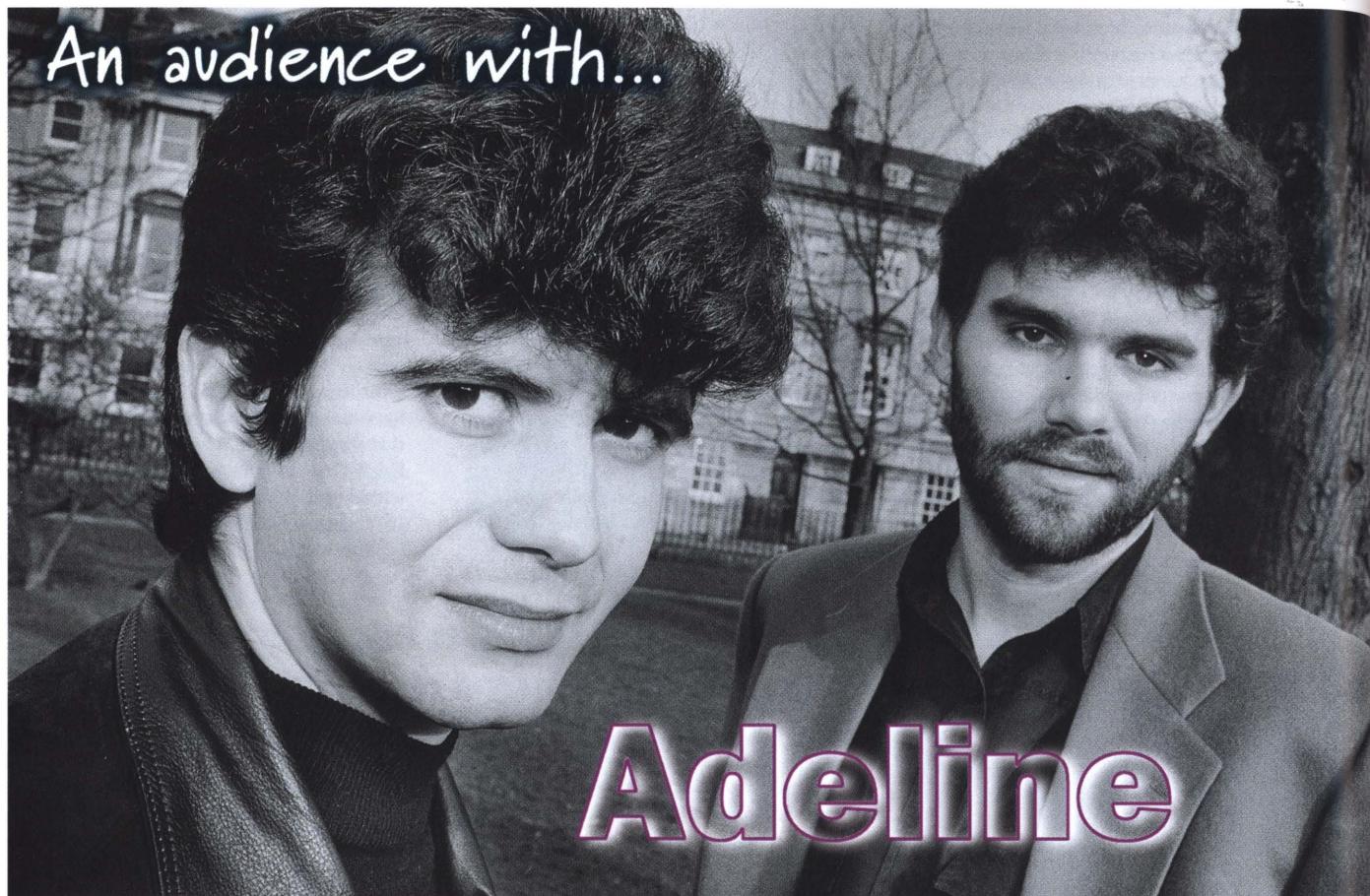
JS Absolutely, we didn't need the PC. So we were going 'Oh, we don't need it' when we should have been trying to crack the American market. But no, we stuck our bloody heads in the sand with Amiga and the ST.

Edge Are you still committed to Amiga?

JS No, we bailed out of the Amiga a year ago. We did some CD³² stuff and had some



When you get a call from Nintendo because Shigeru Miyamoto wants you to be making Nintendo 64 games, you know you're getting at least something right, and in Adeline's case it's beguiling PC title *Little Big Adventure*. Before N64 work, though, there are a few more PC-shaped projects...



Founded by a coder disillusioned with the games industry's propensity to churn out stale product, Adeline is the epitome of French development – style and gameplay conquering massmarket appeal



ne possible omission from last month's Industry Top 50 feature could be **Frederic Raynal**, ex Infogrames designer & lead

programmer, and founder of top French development house, Adeline.

Raynal left Infogrames in 1993, disillusioned with the company's reluctance to employ new ideas and concepts in the *Alone in the Dark* sequels. Instead, he took the ideas and trawled them into Adeline's debut, *Little Big Adventure*, a beautiful, offbeat title that confirmed Raynal's expanding company as one of France's four major software developers. Judging by early demos it looks as though the style, vision and attention to detail that went into *LBA* have also found their way into Adeline's current developments: a sequel to *LBA* and a new title, *Time Commando*.

Most important is the fact that Adeline are not content

to rest on their laurels. They could have easily decided, as Frederic's ex employer, Infogrames, did, to stay with the winning formula and release many sequels to *LBA* using the original engine. But this is not Raynal's way. He, and the rest of the Adeline team, some coaxed from Infogrames, some, like lead coder **Serge Plagnol**, recruited along the way, have a more innovative agenda – if a game looks technically possible from the outset, it's not worth doing.

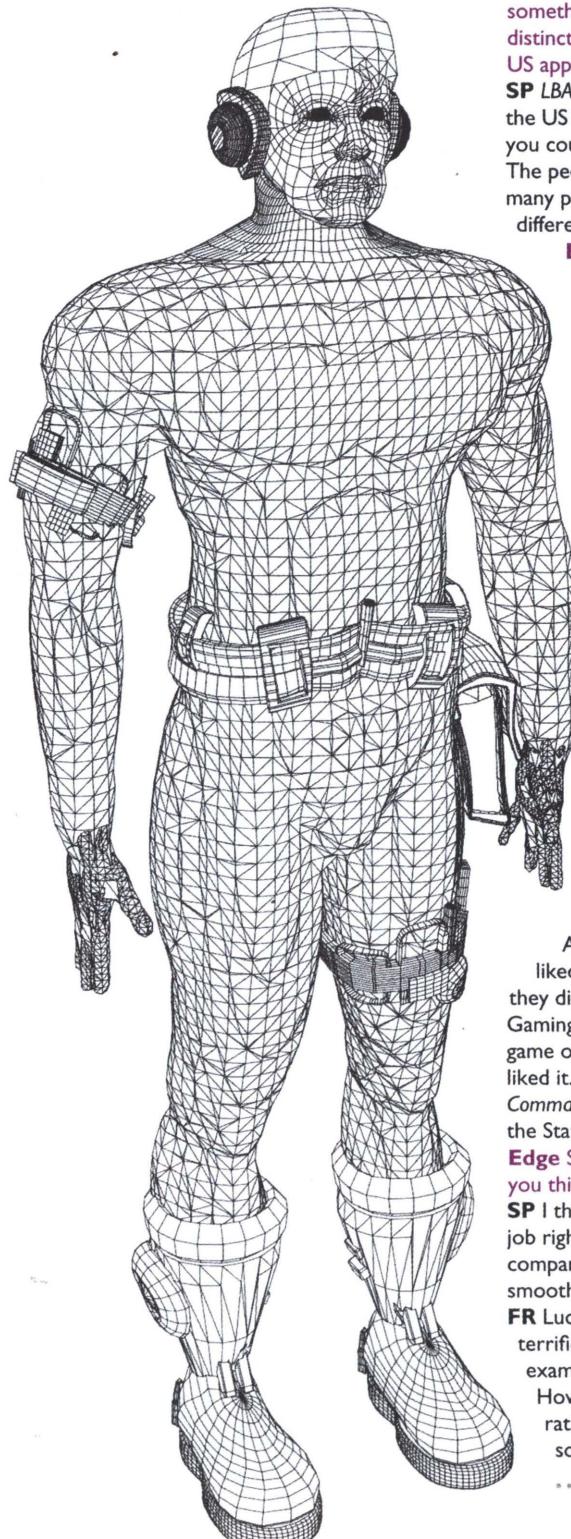
Frederic and Serge visited Bath to talk to **Edge** about projects past, present and future.

Edge Looking back at *LBA*, what do you think you've learned since then?

FR There were some big mistakes in *LBA*, like the save feature which auto-saved the game so the player never had to do the same thing twice. I still think it was a good idea, but we didn't explain the concept thoroughly enough, so a lot of people didn't understand it, and



didn't like it. In *LBA* 2 you can save whenever you want, and wherever you are. **SP** The only reason the autosave failed as a concept was because people have been taught that if you want to save you have to go to a menu and press save. That is how they expect games to work, so if you try



anything new, people just get lost. I think if you showed the game to someone who had never played a videogame before, they wouldn't think anything was wrong.

Edge Given *Time Commando*'s gameplay has an arcade slant, it will probably gain more of an international appeal, something *LBA* lacked. Do you think *LBA*'s distinctly European flavour limited its US appeal?

SP *LBA* was actually called *Relentless* in the US and the sales figures were so low you could say we never actually sold it! The people who played it liked it, but not many people saw it. Maybe they want a different type of title there, I don't know.

Edge Perhaps in the US they don't like, or can't relate to, cute French characters...

SP I know there were loads of calls from EA in the US to make Twinsen [*LBA*'s lead character] into something different. They wanted a much tougher character; they wanted him to kick ass. But that wouldn't have

At Adeline we have a policy – if we want to do something and we already know how to do it, don't do it

suited the story.

FR Maybe that's why it didn't sell, because the Americans never understood what *LBA* was about.

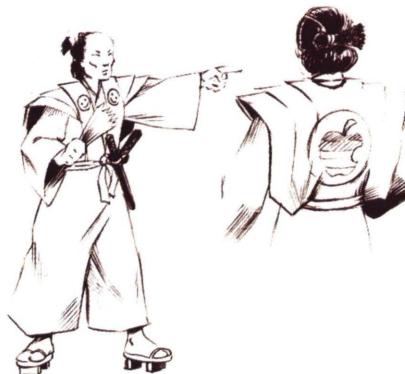
SP On the other hand, the Americans who played the game liked it – no-one we've talked to said they didn't like it. Actually, Computer Gaming World, gave us 'best adventure game of the year', so someone must have liked it. However, I think, as you say, *Time Commando* will be much more successful in the States.

Edge So, which American developers do you think have the right approach?

SP I think Activision is doing a very good job right now. *Mech Warrior* is the company's best effort – it's a simple, smooth game that plays well for what it is.

FR LucasArts design very good games, with terrific scenarios – *Monkey Island*, for example, is very popular in France.

However, the game engine they use is rather dated now, and that is something we wanted to avoid at



Adeline. When we started *LBA* 2, we agreed not to make a straightforward sequel. That's one of the reasons we left Infogrames – they just wanted a sequel to *Alone in the Dark* and we said, no, we want to add something new. If you spend a year basically remaking the first game – okay, it will sell on the strength of the original, but when it's released it will be so far behind other games being developed.

SP What we tend to say at Adeline is, if you want to do something and you



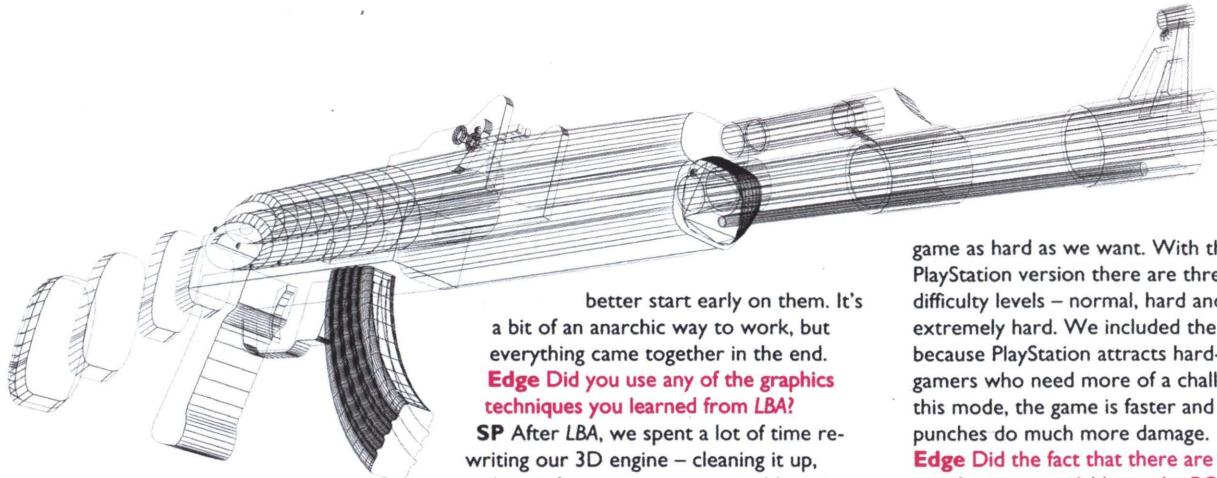
already know how to do it, then don't do it. You've got to try to do something that looks impossible, you have to learn on the way. This happened with *LBA*, *LBA* 2 and *Time Commando* – out of the three lead programmers there would always be one of us saying 'we can't do it, it can't be done', but the other two of us would say, 'don't worry, we'll try...'

FR If you know exactly how to make the game when you start, the chances are, when it's ready to be released in a year's time, it will be out of date. When we were first talking about *Time Commando*, Serge suggested designing it like *Alone*, but with moving cameras. I didn't think it was possible.

SP But I was convinced we could do the streaming with 3D animation. Frederic thought that technically we wouldn't be able to get the streaming right. However, I believed it would work.

Edge Did you think it was a risk to use video pulled off CD? Most PC games that use pre-rendered graphics are, to put it bluntly, boring.

interview



FR With *Time Commando* we wanted to have visually stunning backgrounds and still use a moving camera, but that would not have been a feasible proposition in real 3D. At the moment, the PC cannot handle beautiful, full 3D games. The technique we are using instead is one that I thought about employing for *Alone 2*, but at the time it was impossible. Rest assured, we will be developing full 3D games soon.

Edge How did work start on *Time Commando*? Was it a case of finishing *LBA* and moving straight on to the new title?

SP No. The first thing we decided, after finishing *LBA*, was to do a sequel. However, we realised there was no way we could finish it in time for Christmas '95, and we wanted to have a game out at that time. So, we thought, let's do a quick, small, simple game and let's do it for Christmas. Hence, *Time Commando*. Fairly soon, though, at the end of Spring '95, we thought, 'no way – it'll never be ready for Christmas.'

FR We don't know how to make a small game. It is not in our repertoire.

Edge Why the delay? Did you just keep adding ideas?

FR Partly. Mainly, though, it was to make the game work. We got used to the technical aspects pretty quickly, but we wanted to create a real game with real gameplay.

Edge So, virtually no time was spent planning the gameplay before work was started on the graphics?

FR and **SP** No, zero!

FR Which may have been a mistake...

SP No, it might have seemed like a mistake, but I don't think we could have designed the game before starting work on the visuals – we really needed a graphical source to get the streaming right. Furthermore, we knew there would be so much work to do on the graphics that we'd

better start early on them. It's a bit of an anarchic way to work, but everything came together in the end.

Edge Did you use any of the graphics techniques you learned from *LBA*?

SP After *LBA*, we spent a lot of time rewriting our 3D engine – cleaning it up, making it faster, etc – so we could use it for *Time Commando* and *LBA 2*. The animation has evolved slightly, but hasn't changed significantly, and we've also added texture-mapping code. Furthermore, we've hired a freelance to work on the assembly code who has made it run faster, but that hasn't changed the principles of the system.

Edge When you talked to **Edge** about *LBA* last time, you said you were heavily influenced by *Zelda*. It seems *Time Commando* is even more like a console game than *LBA*. Was that the intention?

FR Yes. Our objective was to test ourselves with a totally different style of game. At Adeline, we all like adventure games like *Zelda*, but we said to ourselves, why not try to make an arcade game, just to see if we can do it. We knew our approach to games is unlike a lot of other developers and we knew we could create something different.

Edge So *Time Commando* is basically an arcade game, then?

FR Yes, definitely. The only adventure elements are searching for weapons and sometimes learning how to use things. There will also be hidden sections that the player can search for, but these will probably be revealed in magazines, etc, at a later date.

The game will also include some nasty surprises and traps.

For example, there is a section where, if you move a stick that's partially buried in the ground, it triggers a rock to fall on your head. However, if quick enough, the player can use this to kill the tiger who's prowling the area.

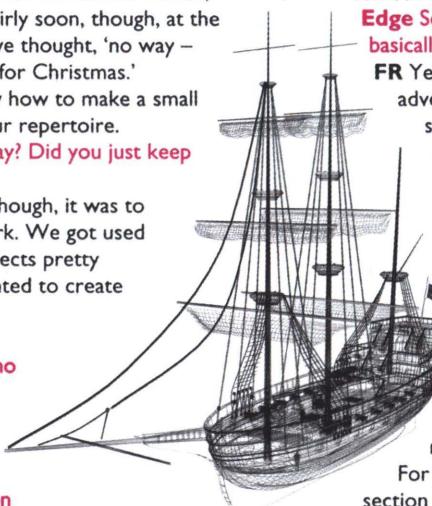
Edge Unlike PC adventures, most arcade games can be finished reasonably quickly. Is this the case with *Time Commando*?

FR I can't really tell you, because that all depends on the tuning – we can make the

game as hard as we want. With the PlayStation version there are three difficulty levels – normal, hard and extremely hard. We included the latter because PlayStation attracts hard-core gamers who need more of a challenge. In this mode, the game is faster and punches do much more damage.

Edge Did the fact that there are very few arcade games available on the PC affect your decision to write a game belonging to the action genre?

FR Maybe, yes. In the past a lot of people who had access to PCs were older and preferred adventure titles. Now there is a new generation of PC users who have a computer at home and who want a variety of different games to play. *Time Commando*,



unlike adventure games, is quick. It's not a short game, but it's divided into levels so you can play it in quick, fun doses.

Edge Moving on to *LBA 2*, in what ways does it differ from the original?

SP We're using a completely new graphical technique in *LBA 2*. The flip screen, isometric view has stayed, but when the player is outside, the backgrounds and scenery are made from thousands of detailed, texture-mapped polygons – there are no bitmaps. It's all true 3D. Of course,

this would be terribly slow if the game actually moved in real 3D, so that's why we're retaining the flip-screen movement from the original. However, when the player changes the direction he is facing, he can hit a button and the new view is drawn up in realtime with texture-mapped polygon scenery.

The flip screen method allows us to use ten times more polygons than in realtime 3D games, because the 3D is rendered only when required. It actually takes about a quarter of a second to render, but the player won't notice it. Plus, there is no way, on a normal PC without



hardware acceleration, that you would be able to have this character always in the centre of the screen with the camera moving all the time, and still have a high level of graphical detail in the background. Our

stand and look around like in *Mario*.

Edge Adeline's graphical innovations are obvious, then, but what about gameplay? Do you feel as though you are making advances in this area too?

SP *LBA 2*'s new 3D view has allowed us to add lots of stuff. The player will be able to drive vehicles properly, for example, and

The flip screen method in *LBA 2* allows us to render ten times the polygons of realtime 3D games

method allows us to render ten thousand polygons per scene and create some beautiful images.

FR With perspective-corrected textures and Gouraud-shaded polygons!

SP Furthermore, when you walk off the screen, the camera will remain in the same direction, although it will be possible to twist the camera to the same direction that Twinsen is facing. This is so the player cannot lose his sense of direction, which often happened in *Alone in the Dark*, because the camera would go 180 degrees from one frame to the other. We might also add an extra feature so you can just

this will be an important element.

FR We've learned a lot from mistakes made by other companies and you can see that in *LBA*. I don't like adventure games where you need to randomly try all objects you have in your inventory to perform a specific task. For example, in *AITD3*, there is a section where you have to open two identical doors. One of them can only be opened with a pass card whereas the other one can be shot through...

SP ...but that doesn't make sense. If you can open one door with a gun, why not use it to open the other one? That's something we wanted to avoid – it just makes the whole game totally illogical. In *LBA* we tried to make sure all the objects have a logical, clear use.

FR At Adeline, if we get sick of a game, but believe the engine is worth doing something with, we might as well license it out to another company. We don't want to waste our time writing a sequel unless we have extra things to put in it. With *LBA* we were still coming up with ideas for the game when it was too late to implement them, so these went into the sequel. However, if there is a third installment to do and we don't feel like doing it, we can license out the engine, but still put our name on the product.

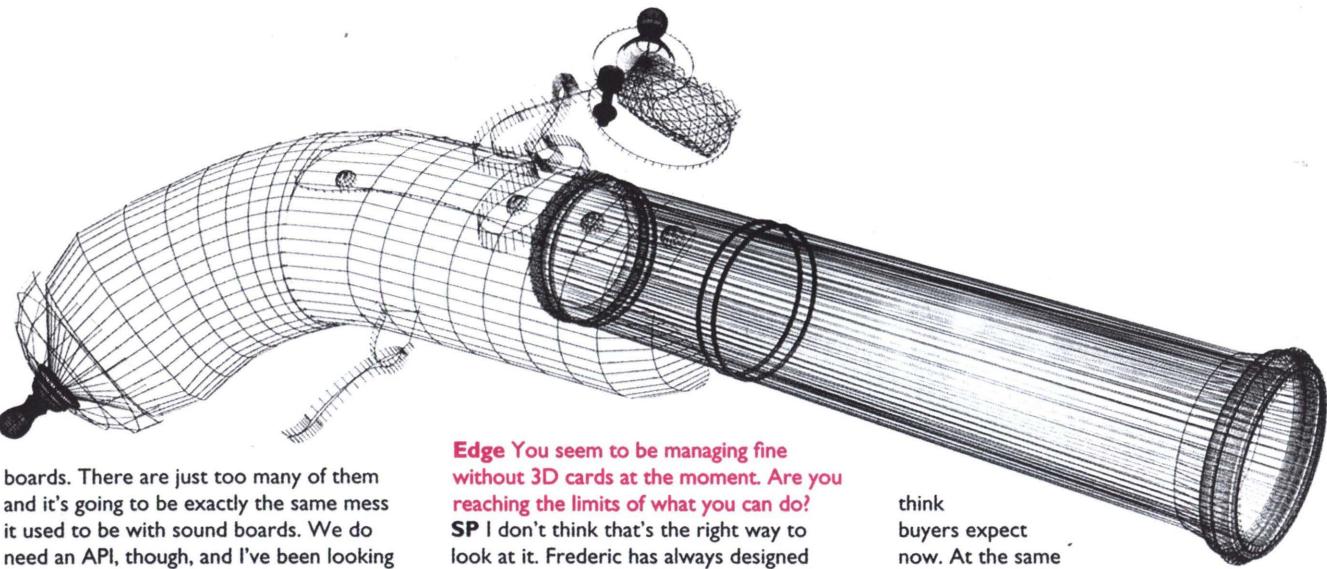
Edge What about the future? Will you be using any of the new PC graphics cards?

FR On the next game perhaps.

SP We have been approached by several 3D card companies, initially by Creative Labs with their Glint chip. What we saw was a very early version of the hardware and we thought it was cool in parts, but we didn't like the API and they didn't want to release low-level information at all. In the end we thought, 'oh well, too bad. Let's wait.'

Adeline has subsequently been approached by other companies, but we didn't want to go along with any of those





boards. There are just too many of them and it's going to be exactly the same mess it used to be with sound boards. We do need an API, though, and I've been looking at quite a few. The 3DR libraries from Intel look quite impressive, but they belong to Intel, so only run on Intel chips. This has so far proved a bit of a problem with Microsoft. However, Microsoft are now developing Direct 3D, which looks quite promising. I still have to see what it is putting in it though, because right now, Direct 3D is just a name. I'm hoping to get a beta version soon.

Edge How do you think these new cards will compare to the consoles in terms of 3D capabilities?

SP I'm sure we'll see something at least as good as PlayStation.

Edge With z-buffering?

SP Z-buffering is not always a good idea, it just takes a lot of CPU bandwidth and a lot of memory. People have usually got very low memory on their video board and they are not going to buy an extra two megs, right now, just for gaming. It's too expensive. In fact, we never use z-buffering – it's really just a brute force technique. I think with smart algorithms you can find acceptable ways around it.

FR When every graphics card can do it, then perhaps we'll use it. However, we are waiting for Direct 3D so it'll be possible to create games without having to worry about cards. Of course, we'll use our polygon engine for the PC because it's a really fast engine, but if there is a 3D card in it, we'll pass through Direct 3D to speed it up.

SP The risk with Direct 3D is that it may only support the features which each graphics card has in common. This would mean that, if there was an outstanding extra feature on just one of the boards, it would not be supported. We'll see. But obviously 3D boards are the way to go in the future.

Edge You seem to be managing fine without 3D cards at the moment. Are you reaching the limits of what you can do?

SP I don't think that's the right way to look at it. Frederic has always designed games according to the machines' capabilities at the time. If we had polygons that we could shuffle around in realtime at 60fps, we'd do something different. However, no matter how good your polygon engine is, it doesn't make a game.

You can create a very good game in low resolution or even with text.

FR The problem is, journalists are waiting for technological advances and players are waiting for good games, and you need to



take both into consideration. If you want journalists to write about your game, you have to show off the technical specs.

Edge What about consoles, are you just working on PlayStation?

SP At the moment, yes. We started on Saturn, but gave up because we realised if we wanted to remain a small team we would have to concentrate on just one console platform. In the end, we felt PlayStation was a better bet – it has a very clean hardware design, so it's very straightforward to program. Saturn is a good machine but it seems like a rush job – Sega saw the competition and suddenly decided to include another CPU.

Edge What about Nintendo, how do you feel about what they are doing?

SP We went to last year's Shoshinkai and had a briefing on the N64 hardware, which looked very promising. The only problem is its lack of CD-ROM drive, something I

think buyers expect now. At the same time, though, this is a Nintendo machine and Nintendo has always had a very good reputation for gaming. The cartridge is still a bit of a problem. Ultra 64 has so much power, you can feed a massive amount of information into the chip – it can process a lot. However, because of the cartridge limit, we might not be able to make as much out of the chip as we could. But maybe everything could be done in realtime with no pre-rendering.

Ultra 64 is balanced in exactly the opposite way to the PC. The PC has got lots of memory but, generally speaking, quite a low CPU bandwidth, because you have to do everything with just one chip. With Ultra 64, you have a huge CPU bandwidth, but very little memory, so it's

designed from the other perspective.

Edge In terms of design, *LBA* and *Time Commando* are highly original, which is something Nintendo is trying to achieve with its N64 titles...

SP Nintendo called us because of Miyamoto. He wanted us to work on N64 as soon as it

would be possible. Right now we can't afford the time because we have to finish *Time Commando* before we can start work on Ultra 64. We haven't been given development kits yet – Nintendo offered us one, but I turned it down because we didn't have any time to look at it. We want to keep a good relationship with Nintendo, but we can't place our projects in jeopardy.

Edge On the subject of 64bit consoles, have you considered developing on M2?

SP They haven't contacted us, so all we know about M2 is what we've read in *Edge*. We tried to arrange a meeting with The 3DO Company, but, so far they haven't got back to us.

Edge Doh!



[EXCLUSIVE REVIEW]

Burnout Dominator



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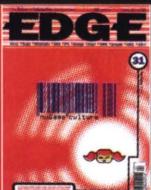
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How do you make gamers care about prerendered content when the very notion of prerendered content has become something that is to be feared? Former 'glamour' codeshop The Bitmap Brothers believes it's found a way: hire the services of a professional film house rather than simply knocking it all together yourself.



Making



The making of Z's pre-rendered cut-scenes was initiated by Maverick's storyboards (top left) before being passed into the talented hands of Bitmap Brothers duo, Chris Thomas and Terry Cattrell, who rendered the entire footage using 3D Studio. The results are well-designed and superbly implemented



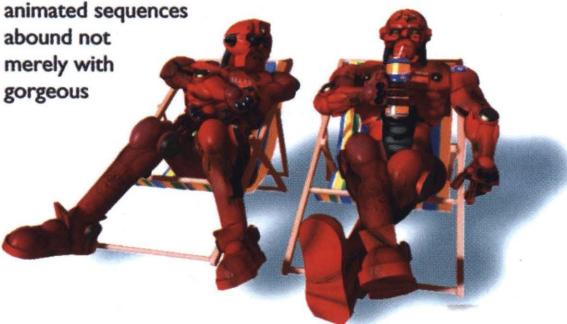
Jesus Christ. I've got front-end coming out of my backside. So groaned the nameless journalist to his companion as they stalked out of the Winter ECTS. It was hard not to feel sympathy. Substantially more potent entry-level hardware, coupled with recent advances in video decompression and increasingly affordable 3D animation software, have all contributed to the routine inclusion of 'cinematic' rendered FMV sequences in almost every computer game. Technologically,

at least, what was exotic a couple of years ago has already become mundane. Yet familiarity need not necessarily breed contempt, as anyone familiar with the fight scenes from *Rollerball* will testify. So why do reviewers and punters alike seem so dismissive of 'out-game' material? Is its prevalence equalled only by its irrelevance? Is it just dull? And will the words 'to skip intro please press start' remain permanently stamped at the front of game manuals?

Will Jeffery and Jake West
of Maverick, a small Soho-based

company now specialising in the area, hope not. They are currently finalising the storyboards for the intro/outro/cut-away sequences for the Bitmap Brothers' long-anticipated war strategy epic, *Z*, a project that has occupied them, on and off, for over a year. Even the most perfunctory look at the results is enough to realise the effort has paid off handsomely. The animated sequences abound not merely with

gorgeous



movies

Pre-rendered animation is seldom well-realised, and often superfluous. **Edge** explores the state of subordinate art



Photography by Jude Edington

Will Jeffery (left) and Jake West (right). With the current trend for FMV in videogames, talented film graduates such as the Mavericks are in demand

design but with character, wit, and dynamic timing. Watching the explosive exploits of *Z*'s renegade robots excites a much more precious commodity than admiration... involvement.

Both Will and Jake graduated from West Surrey College (though several years apart) with degrees in Film, Video and Animation. 'I don't what to blow our trumpets,' says Will, 'but we did pretty well at film school.' Not an exaggeration, it appears. Will's graduation film, *False Prophet*, was aired on the BBC and Jake's, *Club Death*, gets a video release later this year. They met in 1992 working on film trailers at Key Films and soon realised the disciplines they had brought to bear on 16mm shorts and the highly-exacting time-frames imposed by film trailers – economical narrative structures and high-impact editing, in particular – could have a fruitful application in the burgeoning videogames market.

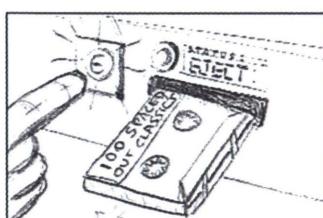
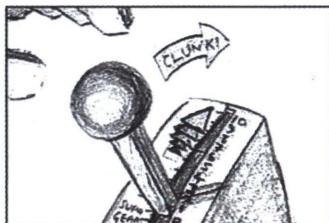
It was not long before they'd garnered a considerable reputation in the games community for their ability to edit footage and music into dramatic, eye-catching promo

Continued next page



trailers. Companies such as Interplay, Domark and Renegade all sought their services and the promos, Will remembers from early ECTSs, 'were clearly better than the competition'. Not least, Jake adds, 'because games companies didn't have to take film too seriously then – it wasn't an integral part of the games.' One company, however, was quick to recognise the potential. **Eric Matthews**, guru and presidio of the legendary Bitmap Brothers, hired them to do a promo and ended up suggesting they did some in-game work for him. Which led to Z.

In Matthews, the Mavericks found a man clearly committed to the same vision – 'to integrate video footage



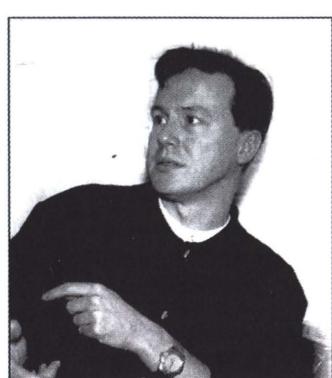
Maverick storyboarded Z's rendered cut-scenes to provide a sense of continuity to the action and to embody the game with real personality and humour. Nothing is wasted and every frame has a purpose

into the game so that it's always relevant, always contributing to the narrative.' It is unsurprising that the Mavericks' chief complaint about most rendered scenes is they fulfil no clear function in the game. 'You get the feeling,' says Jake, 'that a lot is just tacked on because everyone else has some.' The first step is to 'understand what the game is really about' and 'understand what might excite prospective players.' That both Will and Jake are avid players themselves (Jake can trace his addiction to *Manic Miner* and beyond) is certainly helpful in this respect but what really made the difference was the ability, honed in



all that film work, to find a hook in the storyline.

Z is essentially a futuristic war strategy game in which territories on distant planets must be captured. When Matthews approached the Mavericks the game design was sufficiently advanced that their brief was 'to create something around what was already there.' In less imaginative hands this may have resulted in the usual stolid clichés – implacable machines rumbling over battle-torn moonscapes and the like – but as they immersed themselves in the game the Mavericks found something a little more offbeat that fired their interest. At certain points during the action, if neglected, robot troops in his command would go into 'drop-out mode': play cards, take a drink, and generally kick back. Who were these guys? What was the war like



Bitmap boss, Eric Matthews (above), is a firm believer in the effective use of storyboarding

design and execution but lacks personality.' The robots that Will and Jake originated with Eric Matthews – the cigar-chewing butt-kicking Commander Zod and his 'lazy-assing', beer-guzzling, head-banging grunts Brad and Allen – ooze personality. Moreover, the scenarios that feature them have a depth of nuance and humour (including movie homages aplenty and some sly jokes at the expense of 'the usual rendered space-craft drifting through deep space

Here was a chance to create some characters you could care about, something the player could buy into

Jake West

for them? The Mavericks had a hook, and not coincidentally, a hook that complied to one of the first laws of film writing – the plot carries the action but the subplot carries the theme. 'Here was a chance to create some characters you could actually care about,' reflects Jake, 'something the player could buy into. Good equipment and good graphic artists are not enough,' he continues, 'most rendered stuff I see is proficient in

clichés') more normally associated with a good film. 'It's got to be like the game itself,' Will maintains, 'you want it to be good enough to warrant replaying.' The Mavericks are keen, however, to deflect some of their glory. 'It's a mixture of Eric's reality of what he wanted for the gamer and our reality of having to tell the story in a certain amount of time. Eric told us where he needed the sequences and we wrote scripts based on the



Although Z's pre-rendered scenes are an incredibly high standard, it is the characterisation and witty storyline which really impresses. The robots are reluctant warriors, more interested in playing cards and swigging beer – as a result they find themselves in numerous tricky, and hilarious, situations

discussions. Then we'd produce storyboards (or animatics) which we'd go through until we'd got the right length, variety, sense of reward and failure in the game. The Bitmaps animated everything,' Jake adds. 'Once we'd finished a storyboard sequence **Chris Thomas** and **Terry Cattrell** would build, light, and texture-map

the models from wireframe to the fully-rendered thing. They built the spaceship, the characters, all the detail in there. We'd give them suggestions on how the shots would edit because when you're doing 3D animation like this you've got to get it right first time. So we had a lot of input in terms of how the shots would be framed and precisely what movements would take place to ensure the cuts were smooth.'

It seems that Maverick's professional film expertise was crucial to the look and feel of Z and yet they're 'not aware of anyone else with our background doing this stuff. Often you see sequences and you've no idea who's done it. I presume it's the programmers themselves.' A state of affairs Maverick would like to see change. After all, most game FMV clearly apes the aesthetics of the cinema. You don't expect the director of *Batman* to design the computer game as well so why expect a graphic artist to produce

a convincing video sequence? Z demonstrates the wisdom of bringing specialised skills into all aspects of a game development team and Maverick are justifiably proud of their part in it.

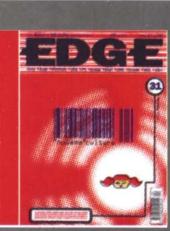


'To be honest, though, we're more interested in live action than computer animation,' confesses Jake. 'The project we're working on at the moment for Time Warner is an FMV solution [substantially helped, it seems, by a decompression routine from a company called Eidos – see E30]. We'll be the producers, writers and directors of all the footage.' Unfortunately, the project remains cloaked in secrecy and the lads refused to reveal more. One thing was promised, however, 'Wing Commander it ain't.'



Z is the soon-to-be-released war strategy sim on the PC. It looks set to rival *Command & Conquer*





From the Ministry Of Sound's PlayStation room to Sony's sponsorship of The Face magazine's club guide to endorsement from the likes of Orbital and Leftfield on the *Wipeout* soundtrack, gaming is changing identity in a bid to attract new devotees. Here, the people behind the shift explain how it's happened.



nugame



culture

Music, design and interactive entertainment are creative spheres on a collision course. Edge witnesses a videogaming renaissance



raditionally, and often rightly, regarded as the playground for nihilistic, disaffected teenagers, videogames are undergoing a transformation. Slowly disappearing are the stereotypical, mainstream media-pushed images of schoolchildren shunning their homework for another bout on *Mario*. Instead, thanks to some astute marketing tactics by the major console manufacturers, Sony in particular, interactive entertainment has experienced an image upheaval of colossal proportions.

Consider the evidence. Last year's Glastonbury nearly drowned under heaps of flyers advertising PlayStation, which also happened to be perforated into roach-sized chunks. Psygnosis' *Wipeout*, the latest PlayStation barnstormer, appeared with an accompanying compilation album of dance cuts, Designers Republic packaging and a soundtrack including efforts from Orbital,

Continued



Ministry of Sound's PlayStation room has proven popular and was a smart move for Sony



heaps of PlayStation flyers, perforated into roach-sized chunks

Leftfield and The Chemical Brothers. Gremlin signed up dance-guitar band Pop Will Eat Itself to supply the soundtrack for its PlayStation game, *Loaded*. Computer-based artist, William Latham, has provided reams of artwork for, and even directed, the latest video of pop-dance band The Shamen. London's influential Ministry of Sound club opened up a room full of PlayStations. JVC UK has even persuaded some of the country's top jungle practitioners to remix music from the soundtracks of Namco's *Tekken* and *Ridge Racer*.

Games are written about incessantly in the magazines which exist solely to instruct



One of Sony's first exercises in hype – a subtle hijacking of the style press

people on what to wear, what to do and what music to listen to, in order to achieve a state of terminal trendiness. Jungle guru, Goldie, who would probably send music critics into a swoon by sneezing into a microphone, takes his PlayStation to all of his influential Saturday-night DJ-ing gigs at London's Blue Note club. Cream, the Ministry's Liverpool-based equivalent, is finalising a tie-up with a videogames hardware manufacturer. Sony sponsored the recent tour of house and trance guru, Brian Transeau (aka BT), and The Face's recent club guide. The worlds of dance music and videogames, in particular, seem to have collided like tectonic plates and stuck to each other.



Yet, not so long ago, gamers were either approximately 12-years-old or bearded collectors of Pink Floyd T-shirts, united as a group only in tragic unhipness. So how did the games world step out of its bedroom and into the zeitgeist?

The moment

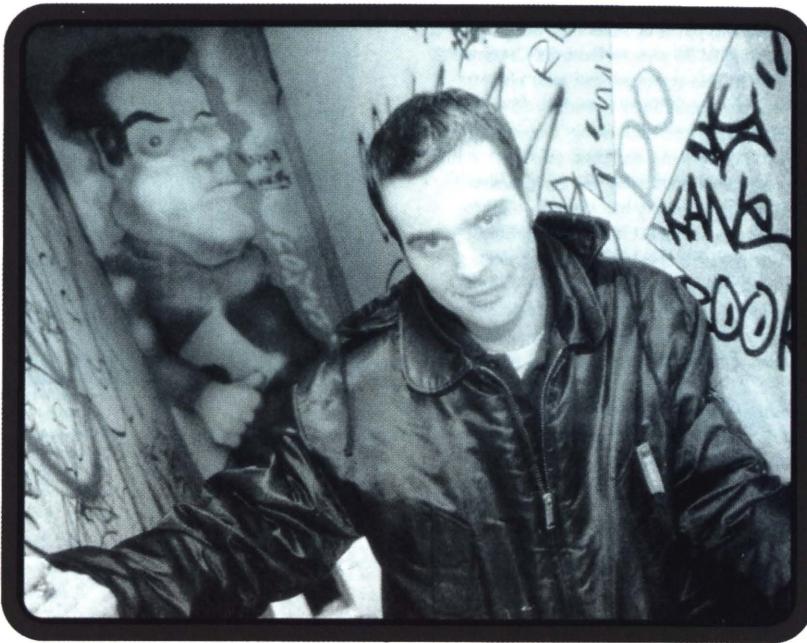
that this shift began to occur can be pinned down precisely – it is the moment Sony started thinking about paving the way for PlayStation's arrival in the UK. At the time, Sony, of course, knew bugger all about console marketing, but, as one of the biggest music publishers and consumer electronics manufacturers, knew all about popular culture. With no baggage carried over from previous generations of games consoles, and plenty of cash to spend, it sat and thought about what to do.

There was the knotty problem of how to get recession-hit punters to part with a whopping £300, for example. Sony Computer Entertainment's underground marketing guru, **Geoff Glendenning**, reminisces, 'A lot of kids have personally spent £100-odd on a 16bit console, and aren't ready to buy another one. We had to aim for the £5 to

24-year-old market. I knew I had to get the underground magazines in, the people who are real individuals, get them on our side and create massive hype, and I needed to do that six months before launch. It had to be almost as if PlayStation was something they had personally discovered.'

Glendenning is a keen clubber, although his nocturnal activities are somewhat curtailed these days by two children. First came the Glastonbury roach stunt (sadly, a blasphemous quote from, natch, **Edge** magazine on the offending objects led to the threat of a Muslim fatwa, and all Glastonbury leftovers have been burnt). Glendenning says, 'From there, I wanted to get into the clubs – it was a convergence waiting to happen. Both dance music and videogames are forms of escapism.'

Hence the deal with the Ministry of Sound, to set up a PlayStation room. **Mark Rodol**, managing director of the Ministry, explains the decision. 'A lot of the people



Geoff Glendenning: catalyst for the more underground activities of Sony's PlayStation marketing

I wanted to get into the clubs

It was a convergence waiting to happen

Geoff Glendenning, SCEA

who come to the club have grown up with videogames. But the 16bit machines could be classed as toys. The great thing about the new generation machines is that the technology enables games to have content, design and music which can stimulate young adults.' Like Sony with PlayStation, Rodol is not interested in selling his product to 'teenage cheesy-quaver-ravers. He also points out that, 'years ago, you'd buy records and dance around in your bedroom. Nowadays, record shops are also selling videogames.'

These days, the MoS is more of a branded business enterprise than a club – it has its own record label and shifts obscene amounts of merchandise. Rodol reveals that it is lining up an interactive CD-ROM venture. 'We're working on a couple of projects at the moment, the idea being to recreate the Ministry and its different rooms, letting people be light jockeys as well as DJs.' Meanwhile, the South of England has the Ministry, and the north has Cream. Leading house music label deConstruction has just concluded a tie-up with Cream, and is part of the BMG conglomerate which numbers interactive multimedia and games software among its many activities. According to deConstruction's **Dave Pullen**, 'The people at Cream would love to do a club game – I know they had some dealings with BMG

Interactive at one point – but the problem with marrying the club culture to games is timing. Between choosing the tracks for such a project and getting it on disk, they would be out of date. But there will be an increasing use of technology in clubs. Clubs like The End, in London, for example, are into the idea of being a leading-edge environment. Cream is looking at putting graphics projectors in Liverpool, for example, and you could say that if you needed to source the graphics for those projections, you'd go to a company like Sony.' Sony is indeed working on such a venture (see p64).

In more general terms, Pullen admires the job Sony has done in marketing PlayStation to club-goers. 'This 18 to 22-year-old group is so media-literate that it's very hard to sell to

them. You have to be quite subtle. They have a lot of disposable income, but they don't give it up easily – they've seen it all before. But Sony has managed successfully to appeal to that group.'

It's a crying shame, then, that Sega – whose Saturn is now seen, in technical terms at least, as being on a par with PlayStation – has dismally failed to insert the console into popular culture. Apart from a few high-impact



Creation of 26 year-old DJ, James Barton, Cream is the epitome of the modern superclub. It relies on immaculate branding, national tours and is now part of a multimedia empire



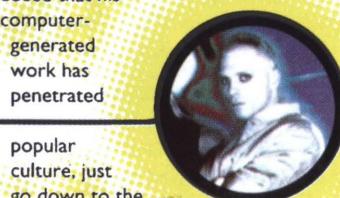
Sponsoring dance icons such as Brian Transeau has added kudos to Sony's brand

ads, Sega's marketing profile has been nonexistent, and pathetic sales figures have led to the sacking of 50 people from its Cromwell Road HQ. The company can only bleat pathetically about Sony spending £5 million on advertising and marketing, a claim which Sony's Glendenning disputes, adding that his most effective marketing has cost virtually nothing. Glendenning has signed a deal for Sony to sponsor the UK snowboarding championships in March, repeating what, for him, is almost a mantra – that this will be done with subtlety. Sega could easily get its act together and muscle in on this sort of action – if only it would regain the necessary nous.

Glendenning is adamant that the key to such effective marketing is getting the right individuals into the company, so it will be interesting to see who Sega hires in the near future. But there is something else – over the past couple of years, all things even vaguely technology-related have become fashionable.

William Latham is a man once employed by IBM – a status of corporate computer establishment that's hard to beat. He is one of the UK's most credible computer artists, working on the

Outside the snooty UK art establishment, he commands esteem in international art circles. And if further proof is needed that his computer-generated work has penetrated



popular culture, just go down to the local record store and hunt out some of The Shamen's recent record or CD covers, all

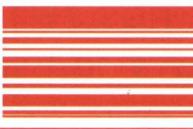
of which sport his sculptures.

Latham's images are on billboards all over the UK advertising The Shamen's new single Heal The Separation, on The Shamen's well-regarded Web site (no pop band worth its salt would dream of living without a Web site these days), and he even directed HTS's video. A forthcoming screensaver from his company, Computer Artworks, called Organic Arts, will soon grace the hippest PC desktops in the country. Again, music and CD-based technology are merging and taking up station at the heart of popular culture.

The Shamen's **Colin Angus** spells out just how technologically aware the band is. 'Inevitably, computers are playing an ever greater role in what we do, from the making



Nemeton, The Shamen's web page, features visuals by Computer Artworks



computers are playing an ever greater role in what we do

Colin Angus, The Shamen

premise that to generate art on a computer, it is necessary to write specific art-generating programs. Anyone doing otherwise is merely a designer, he says. He makes weird,

strangely organic-looking computer sculptures and claims an affinity with the pop artists of the sixties.



William Latham (above), is the 28 year-old creator of Organic Arts (right)



of the music to our involvement in the net via Nemeton, our Web site. Even in the 'live' area they play a role. For example, the last London show was 'netcast'. Ultimately, we'd like to 'netcast' our own audio and visual programming (Shamen TV, perhaps?) from Nemeton, which will become a 3D virtual world before too long (now that VRML is imminent). More realistically, and right now, we have realtime audio on our server, so 'Shamen Radio' via the net is not far off.' Angus' approach to games is refreshing. 'We've featured PlayStations alongside the Macs with internet links at some of our recent shows. I do occasionally indulge myself on flight simulators for the Mac, but that's it for games. I don't really care to sit in front of a monitor unless the endeavour is creative, communicative or profitable.' An attitude which, one suspects, is pervasive at the more environmentally-friendly end of the dance music spectrum.

Elsewhere, the music industry, with its love of new formats (and its philosophy that a

new format equals higher profit margins) is starting to churn out interactive CD-ROMs which, often, can also play as music CDs. Last year saw efforts from Peter Gabriel, The Cranberries, The Rolling Stones and Durutti Column, to name but a few. They were all, to varying degrees, dire, bar an effort from obscure but wonderful dubsters Zion Train. Now, kooky Americans, The Residents and Devo, are readying interactive CD-ROMs, and Abbey Road Studios has even set up an interactive CD-ROM production studio in conjunction with Apple. The dance music fraternity has started to muscle in – last year's Flux Trax compilation played weedy graphics when placed in a PC or Mac CD-ROM drive, and the recent *Sounds of the City: Manchester* CD comes with a CD-ROM comprising an interactive guide to Manchester and even a virtual DJ's booth (which is, sadly, all but unusable). Here, Saturn owners may have the edge over PlayStation owners, as some of them will play on CD-based consoles equipped with MPEG cards. But this new-found enthusiasm among record companies for all things CD-ROM can only widen the popular appeal of computers and, by association, games consoles.

On a slightly different note, here's an intriguing thought. Everybody perceives Japan as the land of karaoke, business cards and, possibly, mustachioed Italian plumbers. All, of



In Japan, videogame companies are gatecrashing club culture, providing linked-up consoles and games available way before their release dates

western culture. If the massive Japanese corporations develop the wherewithal to tap into the fashionable culture underneath their collective nose, the world's 'hip' centre of gravity could make a surprising shift eastwards. Whether this will actually happen or not is anyone's guess.

Gauging the

perceived hipness of playing games is a vexed exercise. Once everyone starts pursuing a pastime, of course, it loses the cool associated with exclusivity. Despite future projects, such as sponsoring the UK snowboarding championships and generating an interactive lifestyle magazine to run on PlayStation, Geoff Glendenning admits PlayStation will 'go mainstream' later this year. He adds that 'software is the key this year,' and for sure, once a large enough proportion of the population has a PlayStation (or Saturn), its hipness will be dictated purely by the status of new software.



US Gold's *Johnny Bazookatone* gained from some club-style concept art by music design company, Fluid, but lost out due to the stagnant game concept lurking underneath the gloss

there's no street kudos attached to the 32bit consoles at all

Richard Benson, editor, The Face



Sony seized the opportunity to sponsor the inline Xtreme Skating Championships, promoting PlayStation in a scene already fuelled by hype

course, plummeting to the depths of uncool. But Ocean recently came up with ads for *Raiden* and *Zero Divide* which, it has been noted, reflect imagery in common with the Designers Republic's work. Ocean's Declan Brennan reveals a surprising provenance. 'Some of the imagery in these ads was brought in from Japan. *Zero Divide* also uses music from a top Japanese techno band.' Despite its strait-laced image, Japan has a fiercely trendy subculture (although a fair proportion of that subculture tends to drift overseas). Japanese techno has a reputation for quality and lack of compromise, perhaps enhanced by its unavailability outside Japan. Like it or not, Manga has insinuated its way from the Japanese underground into popular

Richard Benson, editor of The Face, is unconvinced that gaming is the acme of street cool. 'I think our readers are interested in games, but it's still more of a boys' thing. There's a bit of ennui with the whole scene. The 32bit consoles have been marketed as fashionable products and accepted as such. But there's no street kudos attached to them at all.' Benson is, however, interested in the retro games revival. When questioned about *Wipeout* he says, 'the packaging is interesting – it's really nineties. I like the bit of *Galaxian* that *Ridge Racer* gives you at the start.'

Some people are never satisfied – but then, that's what being a fashion arbiter is all about. One thing is for sure, though – in terms of diversity, the videogames industry has never had it so good, and the convergence of disparate creative entities will only lead to better designed, more stimulating interactive entertainment.

Continued next page

design trailblazing: Wipeout

In the business of videogames software, there is one sort of Holy Grail: the landmark game. No matter how much cash is sunk into games development, however, these appear all too infrequently – the vast majority of games which creep into the shops leave as much impression as a gnat on a rhino. But, every so often, a game appears that grabs the collective games-playing forelock, tugs hard and sets itself up as a landmark in an otherwise featureless environment.

Doom, naturally, is one such game, and in the past landmarks have included *Sonic the Hedgehog*, *Tetris*, *Mortal Kombat* and so on. This tiny list demonstrates landmark games aren't necessarily better than their peers, but, rather, they are impossible to ignore. Now, happily, a new game can be added to the list: *Wipeout*.

Although *Wipeout* is a fast and furious hover-driving game, that put PlayStation on the gaming map, it is the memorable techno soundtrack (a mixture of licensed Sony music and in-house compositions), and snappy Designers Republic packaging that makes the title noteworthy. Its combination of fast gameplay, a well-defined identity and breakthrough graphics make it a good game, but its positioning on a sort of cusp formed by the intersection of videogaming and music culture elevates it to landmark status. One feels sure that it will be ripped off – as all landmark games are.

Wipeout has done well for Psygnosis. According to switched-on PR exec, **Glen O'Connell**, at the time of writing, 60,000



Key to *Wipeout*'s design concept were Psygnosis' Nick Burcombe and Nicky Caruss-Westcott

simple to explain this turnaround: Psygnosis has been awakened from its Rip Van Winkle slumbers by an injection of huge wads of cash from Sony. In June 1993, as part of the initial groundwork for PlayStation's arrival, Sony bought

Psygnosis, a move which, at the time, many thought might end in tears.

Psygnosis, it appears, responded well. O'Connell says, 'We always had the creative resources, but sometimes the money wasn't there.' More than a few games publishers must be acquainted with that predicament. But the way in which those truckloads of Sony readies were turned into *Wipeout*, rather than another unplayable mish-mash tagged onto a pre-rendered SGI intro sequence, presents something of an object lesson to other games publishers.

A tie-up with Designers Republic which goes beyond the packaging and into the game itself, new music from the game soundtrack provided by quality techno practitioners Orbital, Leftfield and The Chemical Brothers, and an associated, fairly credible, compilation album – these are all firsts for a videogame. So where the hell did they come from?

According to **Nick Burcombe**, *Wipeout*'s chief designer, the idea for *Wipeout* was hatched in time-honoured fashion – down the pub. Burcombe says, 'The idea owes a lot to an old Amiga game called *Powerdrome*, which was a nice concept but the technology wasn't there. I've always been into dance music, and a dance music soundtrack is the only thing that would have suited an ultra-fast game with attitude. It also fitted the fashionable market into which Sony wanted to put PlayStation. Not that we consciously tried to do that, however.'

For Burcombe, giving a game a soundtrack lifted from the clubs seemed obvious – his clubbing mates liked to play videogames, as do the overwhelming majority of clubbers. He points out that, 'people who go clubbing are always looking for a new form of interactive entertainment. Everyone has now proved that dance music isn't some trend that will eventually go away. It's an intrinsic part of the UK's social culture.'

Of the three headline techno acts involved with *Wipeout*, only Orbital went so far as to specially record a new track for the game, although Leftfield provided a radical remix of the track *Afro-Left*. Burcombe says, 'I went

dance music is integral to the UK's social culture

Nick Burcombe, Psygnosis

copies of *Wipeout* have shifted in the UK (which means more than 50 per cent of the country's PlayStation owners have a copy), and over 250,000 have left the shelves throughout Europe. O'Connell adds, 'It's our most successful game developed in-house. *Lemmings* and *Destruction Derby* are as or

more successful, but they were both published on behalf of someone else.'

On the surface, it's something of a revelation that such a successful game should have issued forth from Psygnosis, a company which, for years, was almost a one-product stable. That product being *Lemmings* – the cute but surprisingly cerebral Amiga game which appeared in the late eighties and has now reached just about every platform. It's actually

Wipeout's influence even extends to a line of cute clubwear for both sexes



down to Orbital's studio, showed them a quick video of the game and they wrote the track 'Wipeout.' Orbital's **Paul Hartnoll** is an avid gamer: 'I've played videogames for years. We made the track up while watching the *Wipeout* video – it was like writing music for *Thunderbirds*. The brief was essentially pretty loose – to write something about six minutes long, with no breakdowns in it. We're going to rework the track for our next album.'

Hartnoll's motivation for writing the *Wipeout* track is clear. 'I want to make film music. People keep using our tracks in films – *Halcyon* was used in *Hackers*, and we've got a track on *Johnny Mnemonic* – but I'd love to do the music for an entire film.' Cannily, he describes *Wipeout* as 'a sort of Gerry Anderson racing game. I've always been interested in making music prompted by visual things.' Orbital fans will be well aware of the filmic tendencies prevalent in all their albums, and shouldn't have to wait too long for their next Orbital fix. Hartnoll reckons he is 'two or three tracks short of a new album.'

The Designers

Republic is one of the UK's top graphic design companies. When a nineties retrospective occurs in the next millennium, DR, formed in 1986 and based in Sheffield, will be accredited with providing the look and feel of the decade. The company is best known for its record sleeve design work – currently, it does a lot of work for, among others, stylish dance music labels Warp and React, and indie bands Supergrass, Pulp and Sleeper, and it first came to prominence after providing *Pop Will Eat Itself* with a stunningly original design identity. It also runs Sheffield's hippest club, The Republic.

In other words, Designers Republic is the business. And it knows it. **Ian Anderson**,

founder and guiding light of DR, explains the circumstances that led to his company's work with Psygnosis on *Wipeout*. 'We were contacted by people in the Psygnosis art department who were Designers Republic fans – they were aware of some quite obscure stuff we'd done. We said that, for example, with record covers, we try to design things that aren't just pictures of bands, and the same principle should apply to *Wipeout*. There would be no point in us doing it if we were going to have to compromise by, for example, using the usual Dungeons and Dragons lettering and a crap screen grab. The point was to come up with something different to anything that had gone before.'

'From there we developed the logos, followed by weapon icons for use on-screen.'

We'd go to Psygnosis, see the game in action and where it had got to, and come back and do something else. They'd say, 'Can we have a bit of that in the game, or can we adapt that for this?' We were vibing each other up. The typefaces were originally developed for

scores, so we made them into a full alphabet. Then we designed some of the in-game billboards.' Plus, of course, the packaging for both game and music CD.

Anderson clearly enjoyed the *Wipeout* project, and is scathing about archetypal games packaging. 'It's all Roger Dean, Yes cover stuff, or else, heavy metal versions of sci-fi. Look at how design for music has evolved. Games packaging is aimed at the same market but it hasn't moved on at all. In the past we've been contacted by games

companies such as Mindscape and Gremlin.' At this point, although anxious not to antagonise potential customers, Anderson is clearly disappointed that neither company courted DR as assiduously as Psygnosis.

Talking to its protagonists, the impression is *Wipeout* emerged from a sort of prevailing mist of good vibes. Anderson says, '*Wipeout* strikes such a chord; it seems obvious now that it's all there.'

Psygnosis' Nicky Carus-Westcott, chief artist on *Wipeout* and the link between Psygnosis and DR, suggests why it works. '*Wipeout* was a real first – before, every element of our games had been done in-house, including the music. We knew it had to be something really special, and we managed to persuade people to spend some of the budget on getting other people in. Most of what you see in *Wipeout* was generated from the design team, rather than being a marketing issue.'

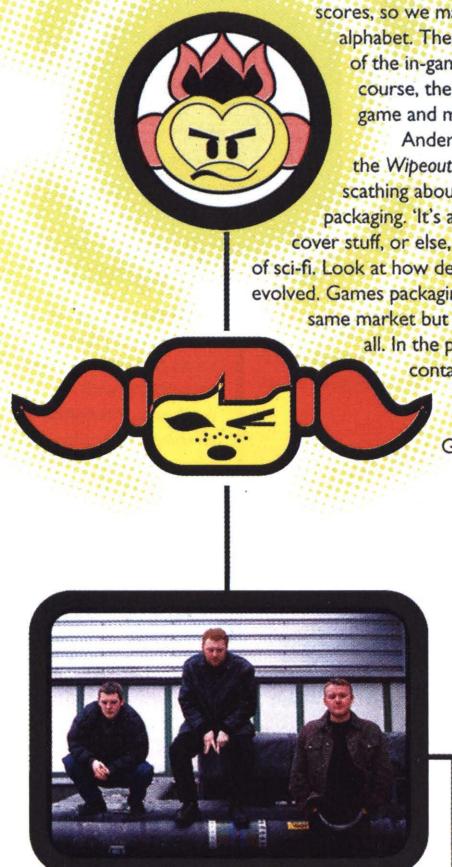
Nick Burcombe was given the backing to pursue his enthusiasm for dance music – that is, Psygnosis opted to take a risk, in this instance, with Sony's money. The rewards are there for all to see – take note, games publishers.

As for the future, Burcombe promises his next game will be 'very, very dancey'. *Wipeout*, with its hovering spacecraft is a bit 'Boys' Own' – my next project will be more of a multi-sex one.' Psygnosis is working on *Wipeout 2*, and DR will once again be involved. Techno hero Dave Angel has approached Psygnosis with a view to musical involvement. The top item on Paul Hartnoll's *Wipeout 2* wish-list – a split-screen version – seems unlikely, though. Still, you can't have everything.

Continued next page



Designers Republic promo for record label Warp has much in common with its *Wipeout* typography



Sheffield-based Designers Republic (Ian Anderson, centre) were drafted by Psygnosis to lend authenticity and credibility to the *Wipeout* project

wipeout strikes such a chord.

It seems obvious now it's all there

Ian Anderson, Designers Republic

amplified kudos: music

Electronic music and videogames, while regarded by outsiders as separate, have in fact been making similar noises for years. Now, finally, they have walked down the aisle and entered a relationship that looks likely to last a long time.

When you cut through the hype and peer at what lies underneath, it becomes obvious that electronic music and videogames are variants of the same thing – pure escapism. Clubbers put on their flashiest togs and go out hoping to find, at their favourite clubs, a fantasy world untouched by reality, in which everything is alien and the hassles of the week seem to belong on a distant planet. Videogames are also primarily about creating fantasy worlds in which people can immerse themselves to escape from reality.

Both span an emotional spectrum. There's the cutesy end of the games world, in which players can pretend to be a hedgehog



Beat combos The Chemical Brothers (top) and Orbital both feature in *Wipeout*

or a plumber navigating a pastel-shaded world which looks like the inside of a packet of Liquorice Allsorts. The clubbing world's equivalent is the dolled-up handbag house scene, in which girls often dress like fluffy bunnies, and everyone wears a cheesy grin and waves their hands in the air.

Then there's the visceral end, in which

gamers pretend to be in the middle of a vicious street fight or driving round a racing circuit at 200mph. On a dancefloor, this is provided by the techno clubs, which combine insistent, superfast drum patterns, sub-bass and sound effects to create an energy rush bypassing the brain and affecting the body. Every game genre has a

music equivalent, and vice-versa.

It's rather surprising the two cultures took such a

long time to collide. Dance music, famously, has become a musical force on the back of technological advances – most of it is generated purely on electronic equipment – so its makers are used to working with machines, interested in all things technological and often, because of this, pretty clued about the latest developments in the games world.

Colin Angus, founder member and musical brains behind dance-crossover band The Shamen: 'Certainly, musicians play games on computers because they own computers, and I often



Indy band Pop Will Eat Itself provided music for Gremlin's *PlayStation Loaded*

observe interminably enthusiastic studio sessions (during working hours, no less) of *Doom* and suchlike shoot 'em ups. I'm amazed at how violent some of these games are, yet they are deemed perfectly acceptable, even for minors. No doubt, if someone were to produce a game where the characters were

clutching spliffs instead of automatic weapons it would be banned immediately.' What sane person would argue with that?

The world of games development, meanwhile, becomes inexorably more competitive, and games manufacturers are constantly looking for new aspects which could enhance the games-playing experience. Gremlin's **Mark Mattocks**, for example, describes his company's use of a track from Pop Will Eat Itself on the soundtrack of its new PlayStation game, *Loaded*. 'We're always trying to bring something extra to our products. Games have been slated because of their music, but people do listen to music,

dance music is fast and lends itself well to videogames

Mark Rodol, Ministry of Sound

so why shouldn't they be able to listen to music while playing a game?" PWEl, maybe, aren't strictly a dance band, but they're dancey enough to have put beats per minute counts on their record sleeves.

Mark Rodol, managing director of the Ministry of Sound, says, 'Dance music is stimulating in its own right. It's fast, electronic and lends itself well to videogames.' And, of course, now CD-based games consoles are the norm, and the space constraints dictated by carts full of expensive silicon have been transcended, there's room to put Red Book standard music onto game CDs.

The two cultures have a number of things to offer each other. It is known that an association with dance music can lend games a degree of street credibility. But clubs can also use videogames to their advantage. The clubbing scene is now so pervasive and popular that the big clubs are operating as multi-million pound businesses. Dave Pullen of deConstruction records has the following to say about Cream, the Liverpool-based club his company works with: 'Most ambitious clubs are thinking about where the whole club experience can develop. It's about more than the cult of the DJ – you have to add things. Clubs like Cream and the Ministry have written the rules, but they've got to find the next wave, and I think multimedia could potentially be that next wave.'

Sony's Geoff Glendenning is pressing hard to get clubs to use PlayStation to provide visuals. 'I'm working with some Video Jockeys (VJs). You can plug a PlayStation into a Barco projector, and we're working on

cream

many people into jungle
are also into videogames

John Rahim, JVC

sound to light stuff which creates its own graphics. This will let us put out subliminal messages in clubs – if people are in a club off their faces looking at PlayStation graphics, they'll associate them with all that's good in life! Thus, the clubs get their visuals,



Sony gets some subtle advertising and everybody's happy. According to Glendenning, Sony is working on a specific club visuals CD for PlayStation, encouraged by moves from the likes of Jungle pioneer Goldie, who already takes a PlayStation to his regular club nights to provide the visuals. Along similar lines, The Shamen use video-based computer-generated graphics by William Latham at all their live



JVC unleashed top jungle artists (left) on a remix of Tekken's music – although similarities to the game's tunes are hard to trace

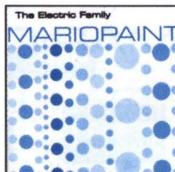
gigs. Indeed, according to The Shamen's Colin Angus, Latham's work amounts to more than just a backdrop for the music.

'William's graphics and animations have been an integral part of the Axis Mutatis releases, having been featured on

the sleeves, in the promo videos (the most recent of which was co-directed by William) and in the 'live' visuals. It was Latham's method, as much as his style, which got us together – he uses genetic algorithms to create, mutate and select forms, in a process which reflects our own interests in DNA, organic chemistry and mimetics.'

Perhaps the most intriguing example of the two cultures working in harmony comes from an unlikely source – JVC UK. JVC's John Rahim has taken the music from Namco's Tekken and Ridge Racer, and commissioned remixes from renowned jungle artists. A 12-inch entitled Tekken: Windermere – the Jungle mixes, is due for release in March, with Jungle heroes T-Power, Lemon D, Dillinja and Dubtronix at the helm. This will be followed in April by trip-hop reworkings of Ridge Racer's rather cheesy soundtrack by Ray Keith.

According to Rahim, 'I've done research which shows people who are into Jungle are also really into videogames.' Sadly, he declines to be more specific about this research, but it's easy to envisage younger gamers being jungle adherents. The project is definitely not an embarrassing attempt by JVC to cosy up to the kids – the remixes show surprising quality, and the specialist music press has reacted accordingly.



Only in Japan could a CD be produced by underground dance musicians equipped with Super Famicoms and Mario Paint. Unsurprisingly, it sounds dismal

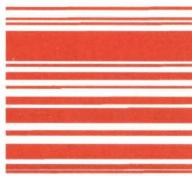
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Then there's the rise of trance and more melodic strains of techno – multi-layered, insistent music, with simple melodies which often sound like the sort of buzzing tunes found in old C64 games. Some common ground is inevitable, of course – it's inherent to musicians working solely with electronic technology.

It doesn't pay

to get too carried away, and any nascent marriage is bound to have teething problems. Gremlin's Mark Mattocks has encountered one. 'The use of music on games is a new area, and the music industry sometimes sees things in a different light. There's one group that says games could increase the sales of music, and another side protecting people's interests. We were lucky to find Infectious Records, which was in a position of power and said it wanted to work with us, so it was going to. But we had to go through the MCPS [the music industry's royalty-allocating body] which had to change its requirements for music on games significantly. At the moment, music on games is treated as another category on a list, like music on videos, or the music played at the Queen Vic in Eastenders. I think the music

Sony's *Wipeout* music album successfully took videogaming into mainstream media. It even made the top 30



much room we have left on the disk.' Roll on high-density CD.

Both Psygnosis

and Gremlin have proved that, in O'Connell's words, 'We can get music industry people involved with games.' The indications are that the music industry is on the verge of becoming very interested indeed in games, particularly now the CD-ROM medium has demonstrated its cross-platform capabilities. An intriguing glimpse of this in action is the *Sounds of the*

City: Manchester CD-ROM accompanying the eponymous DJ mix CD. This is a fairly typical CD-ROM, which plays on PCs and Macs and comes with interactive guides to Manchester and the labels and DJs involved with the compilation, plus a virtual DJ's booth which gives video-based tips from top DJs and the chance to DJ on a computer. The latter is far too crude, but with refinement, it could prove to a popular idea.

All this is just the tip of the iceberg – the cultures of dance music and videogames have barely met and

exchanged pleasantries, let alone indulged in some serious cosying up to each other. That they have got even this far is extremely good news for the millions of gaming dance music enthusiasts. Hopefully this belated union will produce even more irresistible offspring.



it would be cool for DJs to mix ingame soundtracks

Nick Burcombe, Psygnosis

industry will have to become open-minded.'

The *Wipeout* music CD, too, received some adverse press because the only completely original track on it was Orbital's *Wipeout*, incorrectly credited as Petrol on the sleeve (although Leftfield contributed a radical



and excellent remix of Afro-Left from their award-winning album).

Orbital were reportedly 'miffed', according to the music press, that no other acts had contributed specially-recorded tracks. This turns out to be a storm in a teacup. Orbital's Paul Hartnoll says, 'That's not true, I wasn't "miffed", I think the NME or Melody Maker printed that.' Nevertheless, the CD shows signs of a rush job – according to Psygnosis' Glen O'Connell, The Prodigy started recording a specific track but it wasn't completed in time. *Wipeout 2*, hopefully, will have more commissioned music. *Wipeout*'s designer, Nick Burcombe, says, 'It would be kind of cool to get a DJ to do a proper mix for the game soundtrack, so when you start the game, you could be anywhere in the mix. It just depends on how



Interactive CD-ROM, *Sounds of the City*, provides a tour of Manchester (right) and the chance to 'virtually' mix under tuition from top DJs



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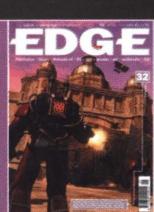
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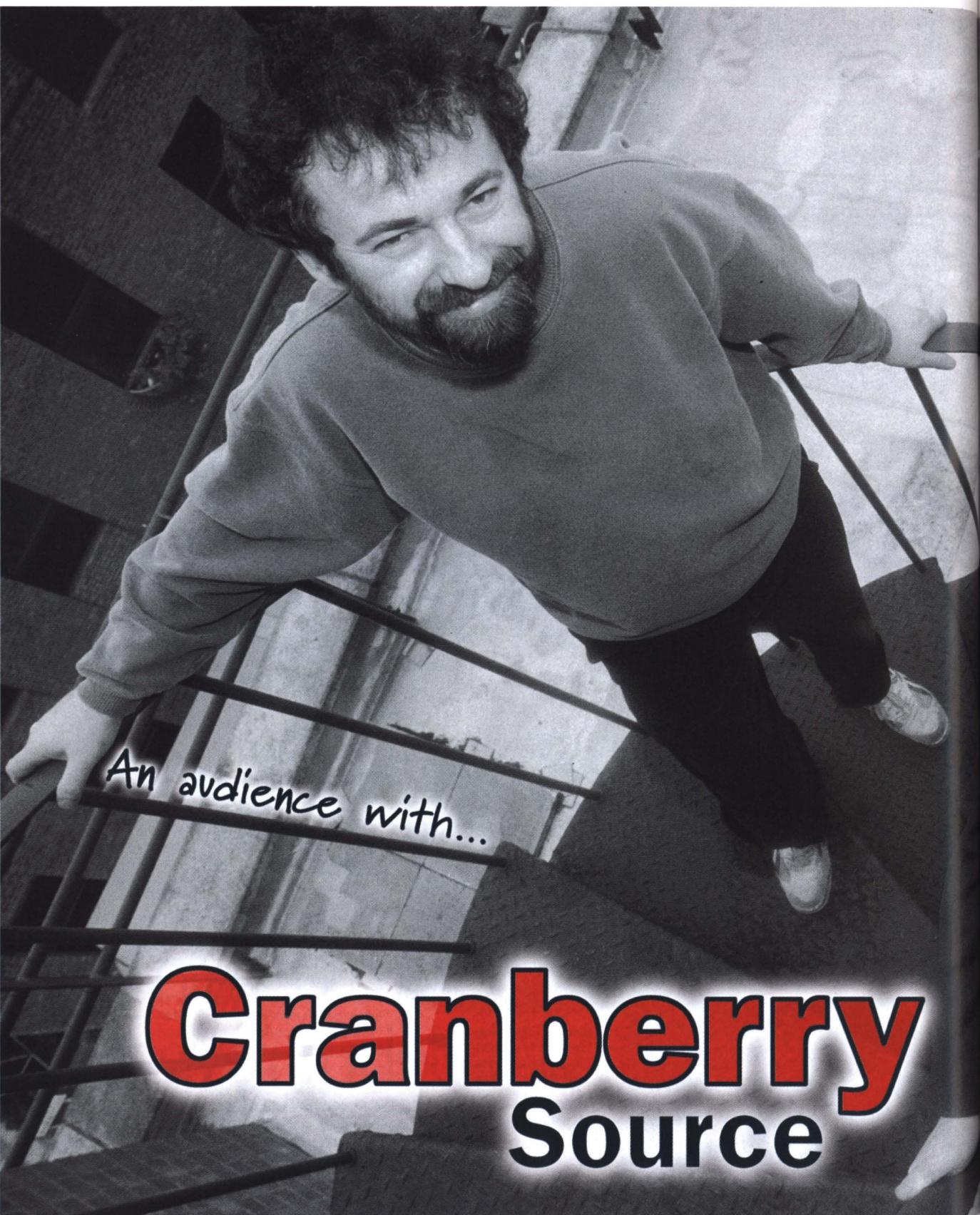
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New Issue Out Now



There's no doubt that British game coders remain among the best when it comes to technology, but they aren't always as good as their overseas cousins when it comes to packaging it up. We'll just have to see how digestible consumers will find *QAD: Quintessential Art Of Destruction*, with its 'sprouts' and 'ENID' innovations.



An audience with...

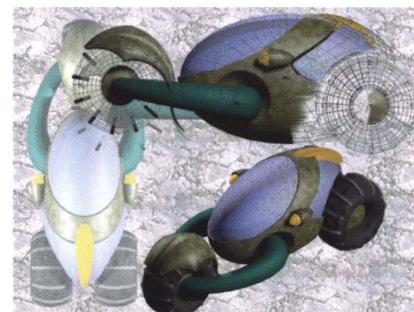
Cranberry
Source

Take two gaming veterans, a handful of PCs and a sprinkling of cash from Philips. Simmer for several months... and avoid any reference to turkeys



In an age when games players must increasingly subsist on a thin gruel of anonymous genre clones delivered by faceless corporate monoliths, the palette cries out for something new. In 1995, industry veterans John Cook and Jon Ritman reckoned they had the recipe to revive those jaded taste-buds and founded their own company, Cranberry Source, with the explicit intention of 'putting the gameplay back into games'. On paper, at any rate, they certainly seem to have the ingredients for success. Cook, whose company, BAD Management, has represented such glamourous clients as Bullfrog and Sensible Software, provides the business and marketing acumen, while Ritman, one of the UK's most venerated programmers, with a string of eighties classics to his name (including side-on football sim, *Matchday*, and isometric 3D action adventurer, *Head Over Heels*, both for the Spectrum), designs the products they hope will fly the flag for

Continued next page



The conceptual art from QAD illustrates Cranberry Source's desire to mutate traditional vehicle designs into organic craft

interview

independent developers throughout the known universe.

With Philips Media having signed a worldwide deal for Cranberry's first three games, the company is expanding rapidly, employing 27 staff, with offices in London and Newcastle. Development on the three initial products is charging ahead, but by far the most advanced is QAD - *Quintessential Art of Destruction*, due for release this Autumn.

Edge Tell us about QAD. In today's world of derivative games what makes it special?

JR Obviously we've got excellent technology. It's a blow-away technology to really make people sit up and look at it. The 'sprouts' [see screen grabs, below], or 3D sprites, are a voxel-type of system which can be viewed from any direction. To get this level of detail, at this resolution, using polygons would be impossible. As for the landscape, the QAD engine, or the 'beyond' engine, is a fractal system. What you're seeing here is the equivalent of twenty gigabytes of data squeezed into 48K. We can run the landscape engine with five hundred sprouts milling about, all at 20 frames a second on a DX2-66.

Edge Sounds impressive, but what kind of shape will the game take?

JR In the gameplay I try to provide a lot of variety, rather than set precisely what you have to do. If you make enough complexity available in a game, people, in effect, will create their own gameplay because there's a large variety of ways of solving things. In QAD, the basic principle will be that you have to rescue/capture hostages that are

wandering about the landscape, and to do that you have a craft in which to fly around, with a pod to collect, and return to safety, the hostages. There are a few other options available (laughs). You can always kill them.

Edge What stands between you and the hostages?

JR Lots of aliens of one form or another. I try not to set precise scenarios because I think it restricts artists far too much.

You can say 'I want a Dungeons & Dragons scenario', but then the artist is tied into barrels and swords and candlesticks. That's okay, but I'd rather say, 'I want you to drop something of this and that scale into that space' and see what happens. As a result of that, journalists say, 'these people have bizarre minds.'

Edge Surely that would be meant only as the sincerest form of flattery.

JC Thank you. When we kicked off QAD we talked about the direction in which the scenario was going, and Jon said, 'the scenario is irrelevant to the quality of a game. It's just the crap you put on the back of the box.' I mean, obviously for certain genre games the story's important but that's not what we're interested in. We don't want the scenario to invent the game

but the game to invent the scenario. In QAD each level will bring a new scenario generated by the computer using a programme of ours called ENID - the Engine of Narrative Invention and Destruction.

Edge Give us an example of an ENID scenario, then?

JR (Laughs) Find the British people and take them shopping. Then contact your local bishop.

JC Obviously, we're still in the early stages of getting ENID to write acceptable scenarios. We don't know how they'll translate into German yet.

Edge You said you wanted the game to invent the scenario. To what extent

does the technology invent the game? Which comes first?

JR You always have to push the edge of technology now. You can't put out something that looks like five years ago or people will just laugh at you. Until you've got it you don't know what the capabilities are and you can't plan the game in detail. If you're an artist and you want to paint a picture you've got to know what paints are available before you start.

Edge There's a few 3D engines vying for the podium at the moment. How do you think yours rates?

JR I think we've currently got the best landscape technology. And the sprouts are way ahead of what anyone else is doing.

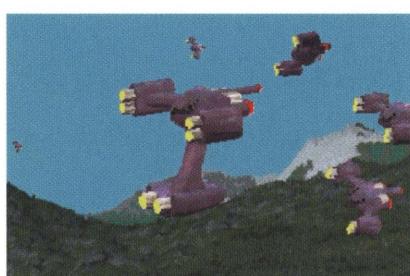
JC Having said that, no amount of whiz-bang technology will make a good game. It can be enabling, though.

JR Just look at the Nintendo 64. By adding some new functions to the hand controller Nintendo allowed for a whole new range of games you can bring out. It's just another tool but it's a really good one.

Edge Do you see the new consoles as being enabling technology?

JC Not compared to the PC. The best games machine you can buy at the moment is a 160MHz Pentium with 60Mb of RAM. Now that's an incredible games machine. PlayStation and Saturn are a bloody good bang for the buck but how can you compete with lots of MIPS and memory?

JR With the PlayStation in particular, it's dedicated to performing polygon operations and very good it is at that, but there are other options. There's not a polygon in sight in QAD so conversion to



Cranberry Source's QAD employs its sprout technology, enabling 3D sprites to be viewed from any distance at any angle. 'It'll really make people sit up and look at it,' says Jon Ritman

the PlayStation presents a little bit of a barrier, to be honest. It's the same thing when you look back at the early consoles. Just look at the Game Boy games. So many of them were sideways scrolling and sprite games. Why? Because that's what the technology provided for and nothing else. At least with the PC you just get pure processing power and you can make it do whatever you want.

Edge It's ironic that, given the PlayStation is pretty much dedicated to 3D, so much of the exciting development in 3D is still originating on the PC.

JR The problem with the PlayStation is that there's not much chance of writing substantially better routines for it than the person down the road. You can't overcome the limitations of the machine. Which you can on the PC.

Edge Does the comparatively open architecture of the PC allow for more original games? What do you think about the current state of game design?

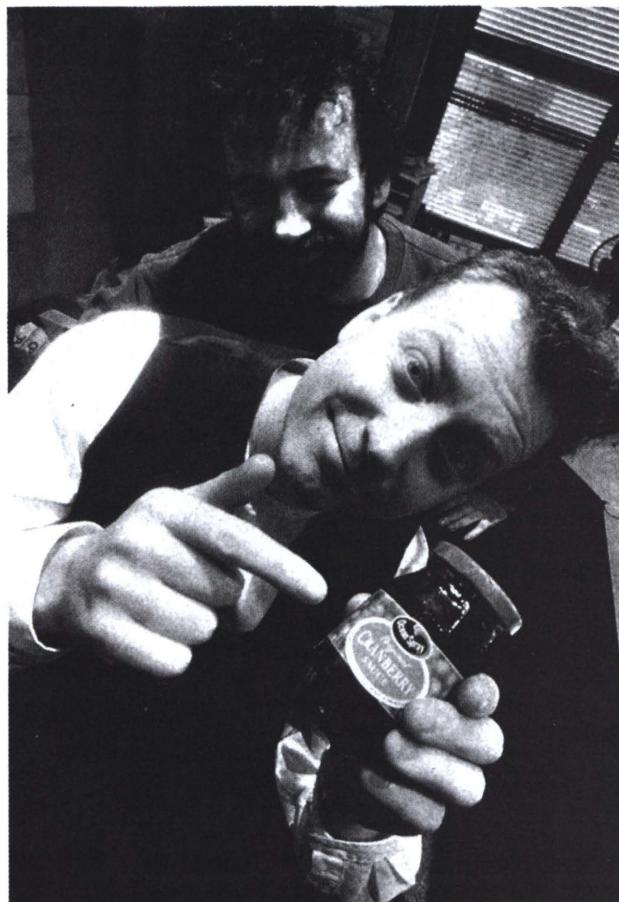
JC I'm pleased with the groundswell that started last year, of which I hope we were a part. I think there is a growing cynicism with FMV coffee table software.

People buy games to play games, not to watch someone being a frustrated movie director. One of the worst things that happened during the late eighties and nineties, during the huge expansion of the business, was 'interactive entertainment'. You had these big companies coming into it with big company speak and they couldn't say 'we've got a games division', it had to be 'interactive entertainment'. That's so far removed from the visceral feeling you should get in front of a keyboard or joystick. It did a lot of damage.

Edge So you're saying just the words



Quintessential Art of Destruction's sprouts, extracted from their natural habitat (from left to right) a donut-shaped splint, two spaceships, and a giant wasp



The scenario is irrelevant to the quality of a game. It's just the crap you put on the back of the box

'interactive entertainment' themselves perverted the course of game design?

JC Absolutely, yes. Proper interactivity will happen. You will have a million people playing *Doom* on a model the size of a continent. But it's in the future. There are too many people peddling the future. You want to go into the shop and buy something that makes you sweat now.



Edge Sweat's a rare commodity in games nowadays.

JC To get inside someone's head like that is tricky.

Which is why virtual reality is attractive. It's dead easy to frighten someone in VR. You just put someone behind you and go

'Boo!' very loudly. It's very difficult to close the distance between the player and a monitor, though. Which is one of the intangible things Jon can do. Fun closes the distance. Fun is the crucial aspect of a game. Games are not just to pass the time until you die. If games aren't fun we've failed.

Edge Is the rising cost of game development an impediment to fun games?

JC It creates a few problems. Especially if you're entering a technology race, an element of that which certainly exists currently. You need to get the product out there as quickly as is compatible while still making a good game. After two years of development you might still be happy with the game but the technology has moved on. In terms of manpower and tools it's very expensive to get it all done in time.

Edge Which inhibits the sort of risks, in terms of content, a small developer may be willing to make. If you've had to spend six figures to bring a game to market you've got to be pretty sure it's going to sell, meaning you create

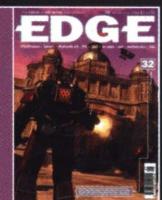
whatever's in vogue, ie another fighting game, another driving game etc.

JR That's right. And the big companies make the mistake of relying on market research which, when it comes to developing new areas, is faulty. You're asking kids whether they'd like something they've never seen. And they, naturally enough, have no idea.

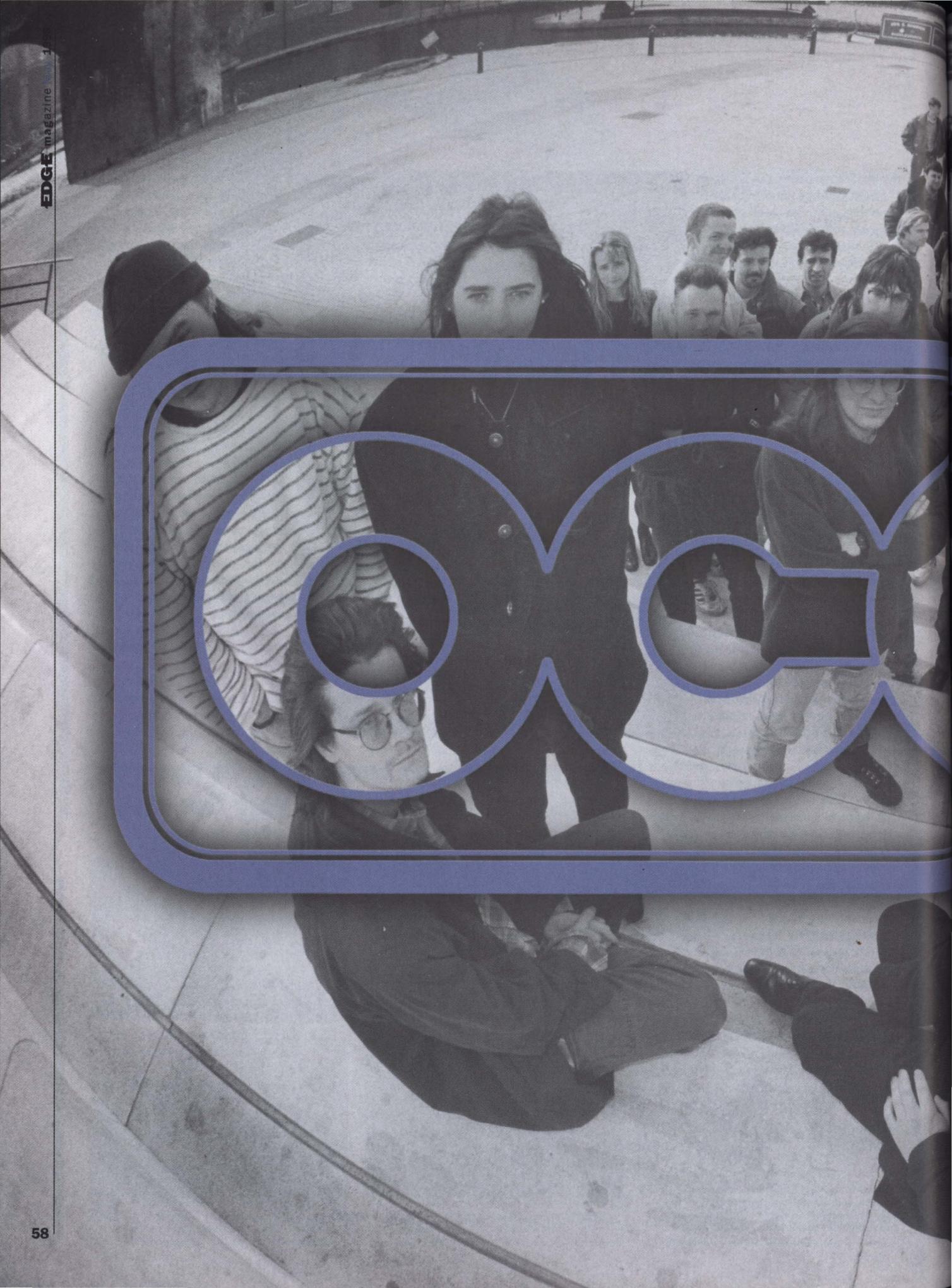
JC And if you're a big company you get a warm cosy feeling to be able to look at the figures and say 'sixty three per cent of our target market say they would like this fighting game'. So if it bombs then, hey, no-one gets fired, it's all blamed on market research.

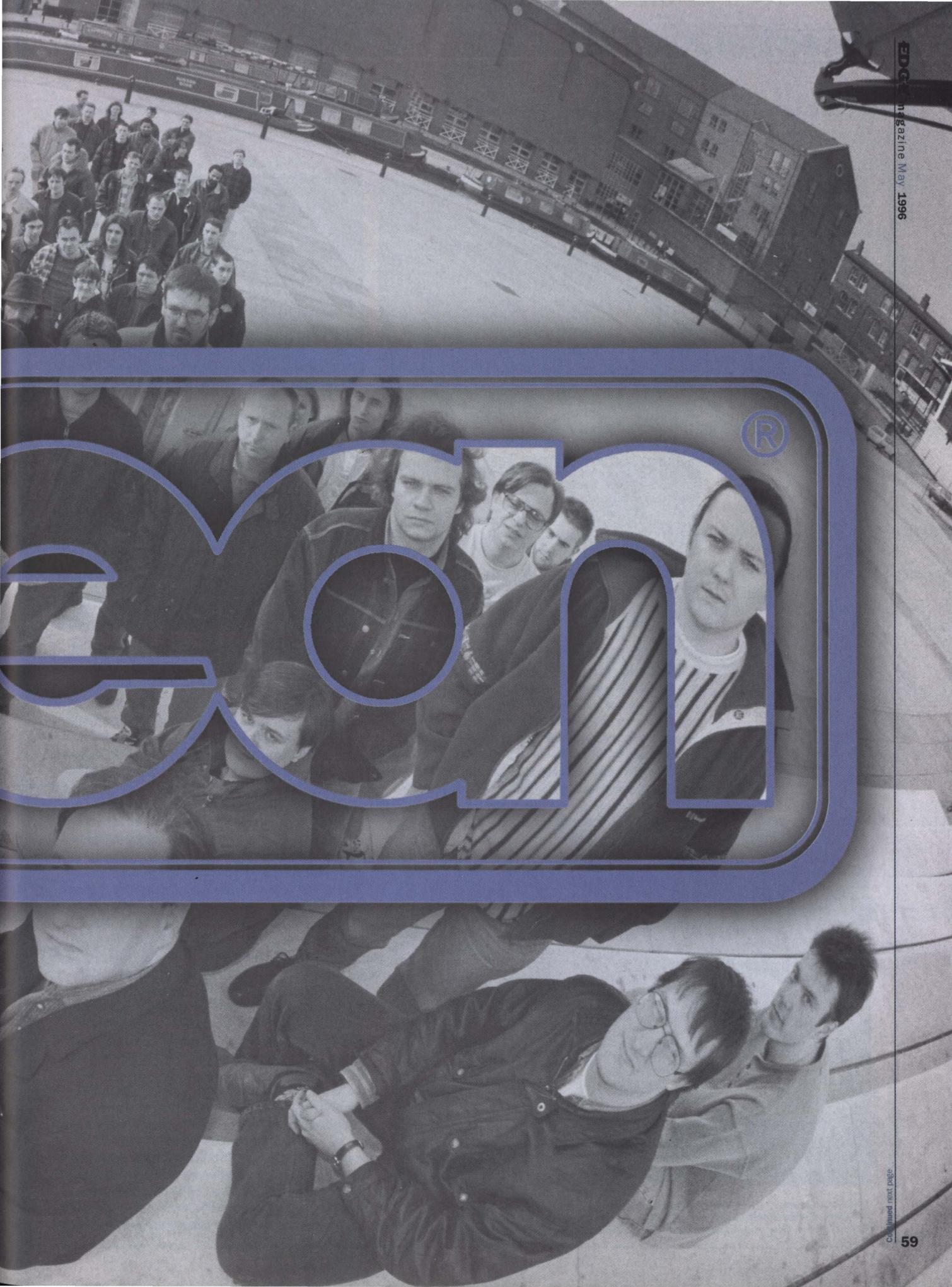
Edge It must be difficult to forge the balance between commercialism and originality, therefore.

JC Gameplay will always sell. And that's what we've got...



A sinisterly themed firstperson shooter, a steampunk-infused air combat game, and... a Hanna Barbera point-and-click adventure? You can't say that Ocean's new in-house studio isn't willing to try its hand at different genres. Now, if only that cursed Fred Flintstone wasn't such a reactionary swine with one joke...





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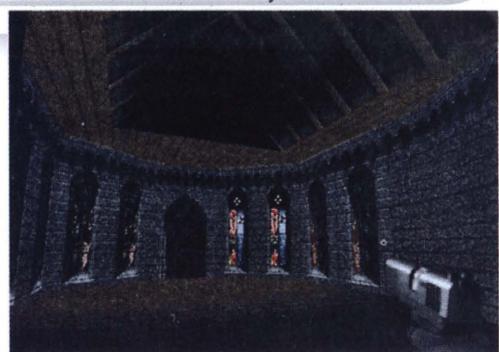
With three multi-platform games currently in development, a brilliant license to exploit and some incredible equipment to play around with, Ocean's new in-house development team, Tribe, looks set to become a prominent force in the wildly expanding next gen games scene. **Edge** braves the bitter Manchester weather and mad inner city one way system on a quest called 'Tribe'



In an attempt to illustrate the exclusivity of Ocean HQ's Manchester locale, **Andy Hughes**, the company's product marketing manager, points out a large building across the canal. 'Jason Orange lives there,' he says, recalling the day Take That announced their split and dozens of teenage girls stood outside and wailed inconsolably.

Until recently, Castlefield was one of the city's bleaker corners – a post industrial waste land of derelict warehouses, crumbling viaducts and suspiciously bubbling canals. Now it's all being refurbished. The canals have been drained for cleaning, the warehouses have been rebuilt and the area is finally a cosmopolitan home to, amongst many others, a software industry giant and a soon to be ex-popstar.

The revival of the landscape surrounding Ocean handily reflects the company's own renaissance. In the 8bit days, after a spate of excellent titles which gave the company heavy financial clout, it was famous for dire licensed products – titles such as *Knight*



Rider, *V* and *Miami Vice* were churned out at an alarming rate, written by tiny, external programming teams and aimed at a then naive audience.

Luckily, things changed. Ocean went on to produce quality titles like *Parallax* and *Batman*, and set up a precursive in-house team, with **Gary Bracey** as manager, which created several successful games for the 16bit consoles (including *The Addams Family* and *Jurassic Park*).

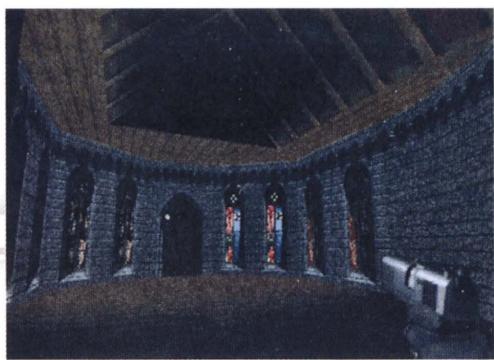
However, when it came to developing for the next gen formats, **Ian Turnbull**, head of software development (drafted in six months before Bracey left), knew the company's present internal setup would not suffice – a new team had to be created. 'There was no chorus of angels shining forth from the heavens above with the ultimate plan,' says Ian on the ideas behind Tribe. 'Basically, we knew the jump from 8/16bit technology to 32/64bit technology was going to be a big one. We also knew the existing way Ocean worked was not suitable for the quality of product we envisaged. I could see a more professional, structured way of working was needed, that allowed creativity to come through.'

The final plan was to divide the team into separate, self-managing groups who would then work on different projects. Now, each group has a team leader, lead programmer and designer. 'Most importantly,' Turnbull points out, 'each of these positions is filled by an active member of the team – we do not have wasted management.' The self-managing aspect was critical, as Turnbull says, 'Too many companies feel they need to overtly control the creative talent by installing layers of directors, assistant directors, producers, etc, none of whom understand the creative process – just think of poor



Photography by Jude Edington

Tribe team Leaders (from left to right), Andy Gavin, Warren Lancashire, Nigel 'Pig' Kershaw, Gerald Weatherup and Mark Ripley pose outside Ocean's Manchester Headquarters. The inspiration for *HMS Carnage*'s industrial look becomes obvious



The oxymoronically-titled *Dawn of Darkness* offers a diverse range of gloomy settings and equally gloomy baddies – the undead middle-aged woman (above right) is particularly attractive. There's also the usual selection of weapons including a shotgun (top left), an Uzi (top right) and a handgun (above left). The zombies tend to stick to hammers

Leonardo sitting in his attic in front of his canvas, brush in hand, with a producer saying 'no, no, no, the mouth is all wrong. What kind of smile is that? It won't work, you need teeth – loads of shiny teeth. Trust me Leo, I know.'

The 'no interfering executives' rule definitely appears to be in operation. As one team leader, **Nigel 'Pig' (don't ask – Edge didn't) Kershaw**, says, 'The great thing about working at Ocean is that you don't have 27 producers constantly looking over your shoulder and saying, 'I think you should do it like this' that so typifies the industry... we get to keep everyone sweating.'

Spending time developing 'strong, solid game designs' is another important aspect of Tribe's development philosophy. 'Text designs begin six months before coding even starts,' says Turnbull, 'followed up with full storyboarding and map design.' There's none of this 'Wow, we've made some lovely graphics, let's release them as a new title... Doh! We forgot about gameplay.' As Kershaw continues, 'Ocean have the foresight to give us time and money, to allow people to sit down, have a good think, and come up with something that is (hopefully) a good product, rather than rushing a sub-standard product out to fill product window.' A refreshing, if somewhat idealistic approach to software development. Who knows, maybe it will catch on.

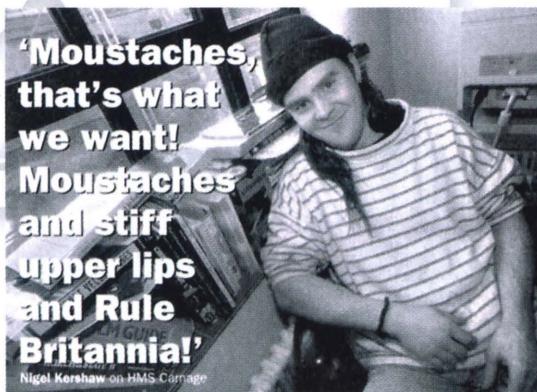
So, over the past two years, Ocean has been building up a formidable and proudly 'middle managementless' in-house team. Programmers, set

designers, musicians, artists, modellers and pure mathematicians have all been recruited, and according to the ethos behind the team, all get a say in what happens. The tribe is now 80-strong and, according to Ian Turnbull, it's still growing.

Out of the three titles currently in development, *Dawn of Darkness* is definitely the one closest to completion. It's basically a *Doom* clone, but, as Turnbull says (exempt of irony), with the emphasis placed on horror and gore. The setting is highly

reminiscent of a George Romero zombie film. It's 2095 and the human race has been destroyed by an army of exhumed undead warriors lead by a pleasant character called Mundae. Most of the human race have been turned into vicious zombies, apart from a small group of survivors. No prizes for guessing which side the player is on.

Dawn of Darkness has several notable features, despite its standard first-person shoot 'em up tag.



Along with many other titles that make up the latest batch of *Doom* clones, *DoD* is a true 3D experience. The player controls the ingame character with both the cursor keys and the mouse – one directing body movement, one directing the character's head. In this way, it is possible to walk in one direction while looking anywhere you want.

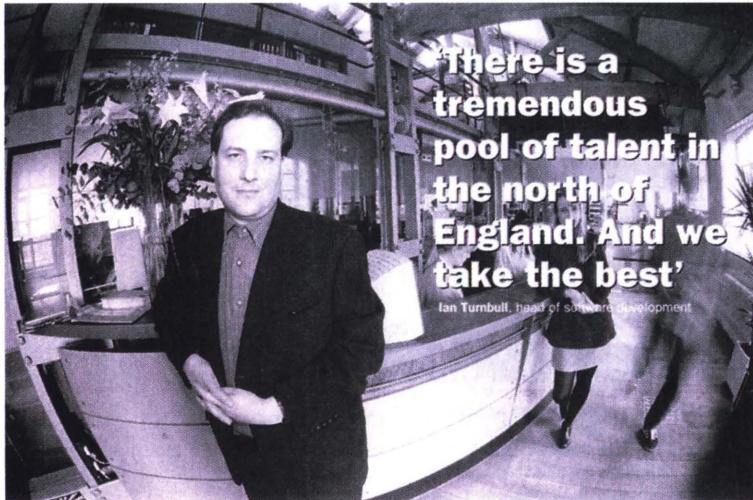
It feels a little strange to begin with, but soon becomes intuitive and necessary. Unlike many of its competitors, the ability to look up and down is a vital part of *Dawn of Darkness*. Some enemies are too small to be shot at in the default, looking straight

ahead, view, and some can fly, meaning attacks from above have to be anticipated.

Most impressive is the level of graphical detail on show. Each location is full of small visual features (flashing lights on control panels, neon signs) which add much to the realism, and therefore the atmosphere, of the game. To prevent this from causing slow down, the programmers employ MIP-mapping techniques so the level of graphical detail is graded in relation to how close the player is.

Dawn of Darkness also boasts a huge range of highly divergent locations ranging from shopping malls (a la Day of the Dead) and car parks to rat infested sewers. The choice of settings goes a long way to accentuating the 'horror movie' feel of the game, as does the eerie darkness that envelops the game. Furthermore, the area available to explore is massive – apparently the city, where much of the action takes place, is actually the size of London – and the player can visit all of it.

Out of step with current video game thought, the team responsible for *DoD* have chosen to draw the enemies (a motley collection of alarmingly repulsive zombies) as sprites, rather than building them as complex polygon models. 'We did it to keep the speed of the engine up,' explains Turnbull. 'The characters you're up against are all 2D sprites but in a 3D environment. They're the highest resolution sprites that anybody's done so far – most of them are 96x96 pixels, in most other games they'll be smaller – 60x60.'



How to create Pandemonium

Pandemonium is an attempt to create a fully interactive cartoon adventure using characters and voice actors from the Hanna Barbera stable.

To add to the authenticity of the game, Tribe used traditional cartoon techniques and animation technology in the design process. Here's how...

1. The animated characters are hand drawn in the traditional way, ie by a cartoon artist with 24 line drawings (frames) per second.
2. The line drawings are then scanned into an application

called *Animo*, running on a high-end PC. 'Animo is a package used in the animation industry to create cartoons,' says Gerald Weatherup, team leader on *Pandemonium*. 'We use it to check line drawing continuity before each frame is painted.'

3. Similarly, the game backgrounds are hand-painted, scanned into the PC and touched up using *Paint Shop Pro*.

4. Next, a scene is setup using the hand-painted background. The camera movements are set and the animation is moved across

the scene –
somewhat like filming a
scene for a movie.

5. The scene is then rendered to disk at the correct sizes to be used in the game. Finally, it is loaded onto the editor, cut out, and grabbed/compressed for inclusion in the game code.

To complicate matters, every character and background designed for *Pandemonium* had to be sent to Hanna Barbera for authorisation.

for animation. Considering there are dozens of locations and over 12,000 frames of animation, this must have been a mammoth task.



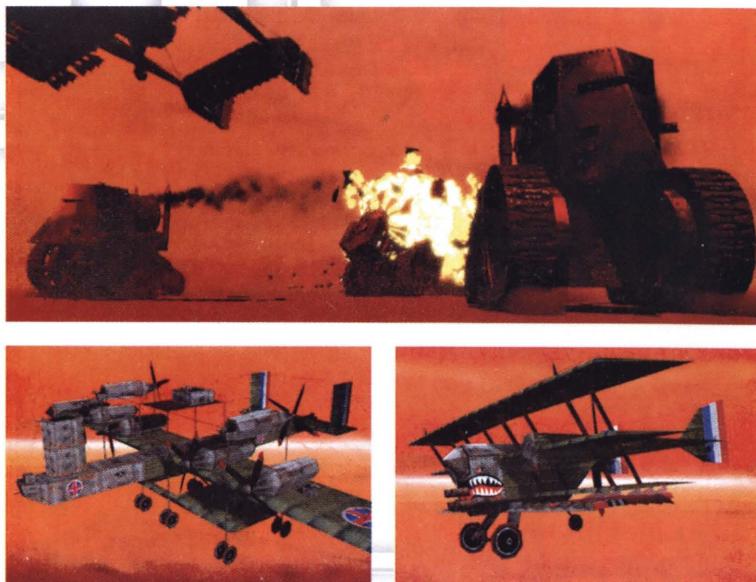
There are more features beginning to emerge. The game employs 'interactive lighting', for instance, which means many light sources can be switched on or off, or destroyed by the player. This adds an extra element to those frenzied fire fights – one stray shot could plunge the action into absolute darkness.

Furthermore, in one player mode, the player doesn't have to tackle the game alone – his character commands a small unit of computer-controlled marines who communicate with him via an intercom system. They can be dispatched to unexplored areas and will report back if they get into trouble or find something interesting.

One more thing – out of the 20 or so different enemies, one is a huge, fat, middle-aged women in a horrible dress who spits corrosive ectoplasm at you. It's like being attacked by an undead Roseanne Arnold. Just a taster of what to expect...

Indeed, Tribe seem to have a talent for weird ideas. The provisionally-titled *HMS Carnage*, for example, is a 3D flight shoot 'em up set on Mars in an alternate future. Admittedly, that in itself is not particularly weird for the videogames world. However, this alternative future just happens to be a surreal representation of what things may have been like if the Victorians had rejected electricity and stuck with technologies and ideas with which they were already comfortable.

Hence, the surface of Mars is now populated by steam-driven land vehicles and, even better, the skies are filled with elastic band-powered aircraft. Even the



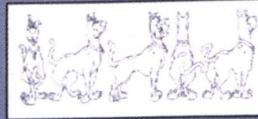
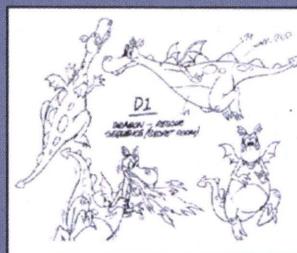
Steam-driven tanks (top) and elastic band-powered aircraft (above). Tribe were not aiming for stark realism when they formulated the concepts behind *HMS Carnage*

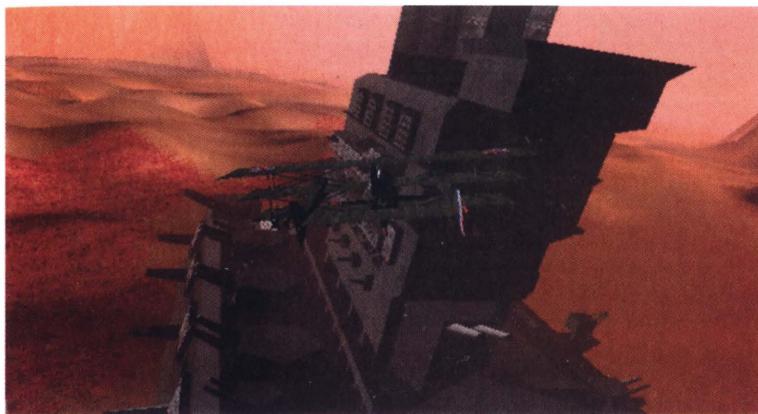
inhabitants of the planet have retained all the quirks and mannerisms of their Victorian forefathers. Imagine the works of Jules Verne and HG Wells crossed with Those Magnificent Men in their Flying Machines, Biggles and the William Gibson novel, The

Sedna Animation



For cartoon authenticity, ex-Disney and Cosgrove Hall (creators of *Danger Mouse*) artists were hired. Their initial line drawings (top centre, below) are scanned into *Animo* and then placed over colourful, hand-painted backgrounds (top right). The one and a half minute intro sequence features Fred Flintstone, Shaggy and Scooby discovering a haunted house. It's not long before they manage to fall down some stairs (left). The animation for this sequence is amazing

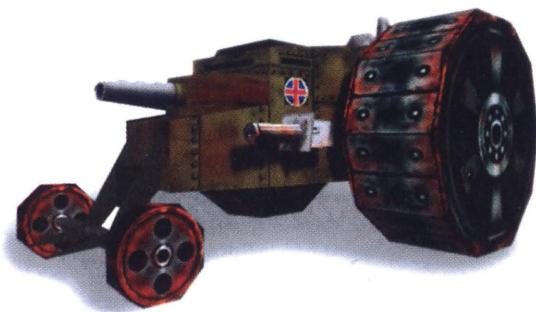
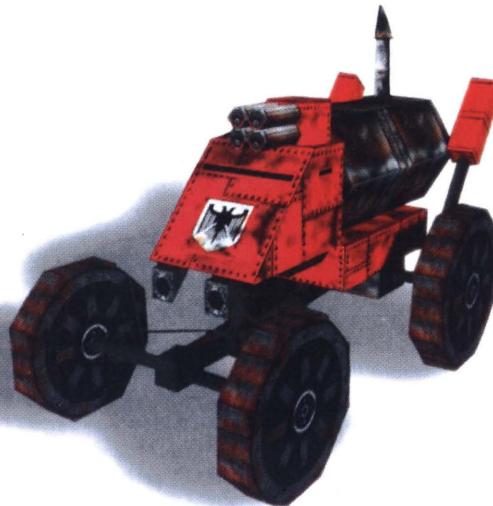




Difference Engine, and you're some way to understanding the look and feel of the title.

In a sense, the bizarre scenario comes out of Tribe's frustration with formulaic American game themes. As team Leader on the project 'Pig' Kershaw points out, 'We wanted to come up with a completely new story, rather than the usual 'Jack, the all-American hero, saves the universe yet again from the hordes of Gribbly', or whatever. Instead, we went for something quintessentially English – basically we took the Victorians, and all the really cool imperial stereotypes, and stuck them on Mars.'

The weirdness doesn't stop there. For once, the baddies are not evil space aliens, but a 'nation of exiled European nobles' called the barons. As Kershaw elaborates, 'All the bad guys are your



Despite the restraining limits of Victorian technology, the designers of *HMS Carnage* managed to come up with a huge collection of eccentric vehicles. The 3D engine they inhabit is fast and beautifully smooth



typically Teutonic, spike-helmeted characters flying around in zeppelins... but they're definitely not German. Oh no... Germany is an important market!

At the moment the game is little more than a collection of off-the-wall ideas and an accomplished 3D engine. The latter is enough, however, to show off the beautifully drawn, undulating martian landscape and some of the strange hybrid vehicles – including *HMS Carnage* herself, a massive space-travelling dreadnought. Impressively, aircraft movement is incredibly smooth, despite the detailed, textured backgrounds.

As for inspiration, **Edge** asked where the idea to use Victorian technology came from. 'Look out of the window,' Kershaw replies, staring out at the miles and miles of gloomy Victorian/industrial architecture, 'this is Manchester for fuck's sake!'

Ocean being Ocean, a license had to pop up somewhere, and luckily it's a good one. Through an exclusive deal with cartoon giant, Hanna Barbera, Tribe has acquired the rights to use all of the company's most famous characters, including Fred Flintstone, Scooby Doo and Penelope Pitstop. The result: *Pandemonium*.

Pandemonium is a 2D point-and-click adventure, described by team leader, **Gerald Weatherup**, as a

fully-fledged interactive cartoon. The storyline is pretty simple: Fred Flintstone, accompanied by the likes of Shaggy and Scooby-Doo, must locate and destroy the evil Dick Dastardly's sound removal machine – a device capable of sucking all the sounds out of cartoon land. As expected, there are dozens of puzzles to solve and, in a style reminiscent of LucasArts' best titles, dozens of FMV sequences to view along the way.

Although little is known about the plot, it is clear much is being done to capture the visual essence of the Hanna Barbera world. Taking advantage of a lull in the cartoon animation employment market, Tribe has been able to recruit animators and artists from companies like Disney and Cosgrove Hall to give *Pandemonium* a cartoon look. Even more impressive is the fact that the game is being created using techniques and technology taken straight from the world of animation (see boxout).

But not content with capturing the correct visuals, Tribe has also acquired Hanna Barbera's sound library which includes, **Edge** has been assured, that weird drum role noise which plays whenever Scooby and Shaggy get scared and run on the spot for a few seconds before skidaddling. The importance of this cannot be overstated.

Furthermore, to completely capture the aural atmosphere of the HB cartoons, Tribe flew to the US and recorded 300 pages of script with the original voice artists responsible for Scooby, Shaggy, etc.

Pandemonium looks wonderful. The two minute intro contains all the knock-about lunacy of an HB cartoon, which bodes well for the game – it at least proves the designers have a feel for the genre. Luckily, earlier ideas to turn *Pandemonium* into some kind of edutainment title have been abandoned. The 'slacker culture' undertones and surreal stupidity of Scooby Doo was completely wasted on children.

Edge has only one grievance with the game so far – Fred Flintstone is the lead character. So what if the film made millions of dollars? – Fred is just a reactionary swine with one-joke (yabba dabba... oh sod it). Shaggy, would have made a much more amusing and subtle hero. There's still hope, though. The system behind *Pandemonium* has been designed as a generic 2D point and click engine so it can be used again. Furthermore, Ocean retain the HB license beyond *Pandemonium*.

Despite

these titles being developed by separate teams within Tribe, they all share the same production values. All three are to be released in scalable incarnations on the PC, meaning that by choosing the appropriate amount of graphical detail, owners of machines from DX-33s to P200s can run the games. Furthermore, all three will eventually find their way onto the Saturn and PlayStation.

As for the future, Turnbull is reticent. 'Unfortunately, our industry operates in a chaotic state – everything is always changing, new 'best ever' consoles are always on the horizon. However, Tribe has been structured around flexible ideals and



Pandemonium features all those classic Hanna Barbera characters, including boorish Fred Flintstone, clueless Scooby Doo and archetypal slacker, Shaggy

management philosophy which will allow the team to react quickly to new technology.' He did confirm, though, that two of the 'new technologies' Tribe will be looking into are PC graphics accelerator cards (all of the games looked at support several of the new cards) and internet gaming via services such as BT's Wireplay.

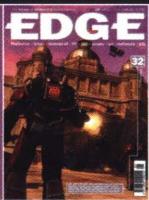
One thing is certain, Tribe has spent a lot of time considering the current industry and deciding on the best way to fit in. The titles it is currently working on are a realistic combination of well-known game genres (point and click, first-person shoot 'em up) and innovative storylines and methods. It seems every member of Tribe has the same idea of what must be done, not just by Tribe, but by the industry as a whole, to stay in business. **Mark Ripley**, another Team leader, sums it up. 'Everyone seems to be putting all their effort into producing the flashiest 3D engine at the moment, which is all very well and good, but we need now to put the same amount of resources into producing optimised AI, character and plot generation, and interaction.'

'Furthermore, in order to survive as an industry, we need to attract more of a mainstream audience, without falling into the trap of producing typical arcade, racing, or fighting games. We must avoid churning out the same stuff year after year, like the industry's got away with so far.'

It's a noble sentiment with which **Edge** firmly agrees.



Civilization 2



'Civ 2 cannot be more highly recommended', concludes Edge's assessment of Microprose's latest strategy game, although you can envisage Sid Meier reading the words and thinking, 'Well, you could've given it ten out of ten, not nine'. He should've found the time to include illegal money-making schemes, of course.



The isometric game map (left) is much prettier than the old 2D affair. FMV is also used. The effect of Darwin's Voyage (above) is shown to the player with the help of two silhouetted giraffes

Format: PC

Publisher: Microprose

Developer: In-house

Price: £45

Release: May

Origin: US



A system of menus (above) covers the game map (top) when decisions have to be made or news arrives

Adored by PC owners worldwide, Sid Meier's *Civilization* was undisputedly a masterpiece. Never before had a game offered such depth, diversity and longevity. Never before, and, some said, never again.

But *Civilization 2* manages to take its predecessor's sturdy foundations and fashion a game around them that overshadows the original in every way – without any major changes to the intuitive or addictive gameplay. It's quite simply an astonishing achievement.

The new, improved graphics are inevitably the first thing players will notice about *Civ 2*. A marvellously detailed isometric world map replaces the old 2D display and the game benefits much as a result. Ground features such as hills and plains are clearer and more conspicuous, and the whole thing just looks more interesting in this new angle. There's also a zoom function which is pretty useful, allowing the player to get up close in battle situations, but move out to consider great expanses of the map if the time has come to find a new corner to conquer.

But this is just the beginning of the story. Hiding beneath the aesthetic improvements are hundreds of gameplay additions which are way too numerous to go into in any great depth. Most importantly, dozens of new military units, scientific discoveries, civic improvements and wonders of the world have been added to the basic *Civ* itinerary, meaning even veterans of the original will have a lot to learn in this detailed new world. For example,

you can now develop sewer systems, harbours (to increase coastal activity) and stock exchanges (to accompany banking), you can train spies, explorers and engineers, and – in terms of new military units – there are, amongst others, elephant units, marines and dragoons. All of these interconnect to provide an exhaustive evolutionary pattern, replacing some of Civ's rather jumpy advances (in the original, the technology seemed to skip from the early middle ages to the late renaissance in a couple of moves).

As well as adding brand new features, elements retained from the original have often been altered to bring them into line with the complexity of the new world. For example,



A council meeting. Each of these people represents a facet of the player's government. Elvis Presley (far right) makes a marvellous MP

many of the rules concerning governments (always one of the most difficult elements of the game to get right) have been altered. Democracies and republics can now support units placed in fortresses within three squares of a friendly city, without their absence causing civil unrest. This is invaluable for defence, but remember – opponents can do it too.

Thankfully, the old *Civ* humour has been retained and there's often a slight tongue-in-cheek feel about the game. For example, it is now possible for players to consult their council and talk to scientific, military and even attitude advisors. These advisors are represented as digitised images who constantly bicker with each other and always

consider their own areas of interest the most important. The attitude advisor is a poor Elvis impersonator – a great touch. Best of all, though, are the discussions with foreign diplomats – where your responses to their threats can go from the resentful to the completely childish ('consequences schmonsequences' being one possible retort).

On a more tactically relevant front, a lot has been done to improve the diplomacy aspect of the game. Discussions between emissaries have become more complex, rivals are more intelligent and peace treaties must be talked about in a long term way ('we have prepared a permanent treaty confirming the friendship between our two peoples and fixing our mutual borders for *all time*' – roughly translates into 'don't make a treaty with us just in order to buy time while you build a massive army to crush us').

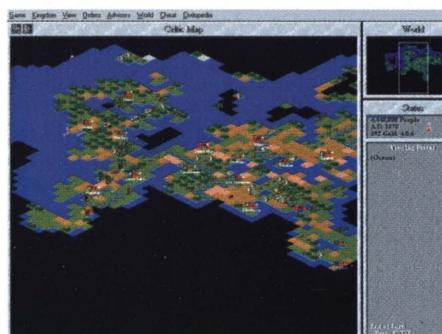
Which brings in the only complaint – although the game seeks to encourage the player to take treaties seriously, it is still very difficult to avoid getting into fights with your neighbours, mainly because of the old rule about units not being able to pass within one square of each other. Peace would be a more stable commodity if this rule applied only to units representing a country with whom the player is at war. As it is, sometimes it's

necessary to break a treaty simply to get to a new piece of land. However, this is a minor complaint – if the player is lucky, these loggerheads can be avoided.

Despite the title's general excellence, there are, of course, dozens more things the designers could have done with *Civilization 2* (a complex UN option would have been good, as would the ability to make lots of money quickly, in illegal ways), but they had to draw the line somewhere. Luckily they've drawn it at the point where the game isn't a pointlessly radical departure from the original, but is still a significant improvement.

For a long-term challenge which changes every time a game is begun, *Civ 2* cannot be more highly recommended. Even for those who can finish *Civ* on its highest skill level, there will be enough here to rekindle their interest.

Of course, *Civ 2* uncovers one major issue: when games like this are released, it makes it so much more difficult to put up with all the pitiful garbage that masquerades as interactive entertainment. Those who have spent the last few years developing dismal Hollywood-inspired FMV fests should shrivel with embarrassment.



The info screen (top) is important to the running of each city. The new zoom function (middle and bottom) helps for focusing on specific areas



Many of *Civ*'s asides, including the discussion and palace screens, have been graphically improved

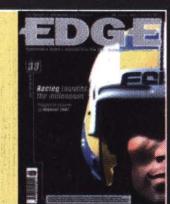
Edge rating:

Nine out of ten



An audience with...

Dave Perry



Having built a killer reputation off the back of *Earthworm Jim*, Shiny is free to pick and choose its formats. And its next target would be Nintendo 64 if the console's 'bulky drive' looked like appearing any time soon. Instead, then, it's PlayStation and Saturn development, but not before a detour into PC land...

Edge asks why one of the most celebrated western game developers of the 16bit era is shunning 32bit consoles to develop for the PC

In a gaming world bustling with strategic alliances, corporate investments, publishing deals and 'most favoured developer' badges, a genuinely unbiased opinion is hard to come by. But **Dave Perry** owes favour to only Interplay (the company owns a small stake in Shiny Entertainment), and he is never afraid to speak his mind.

So far, Shiny Entertainment hasn't been a player on the next-generation battleground. At one point, 3DO was touting Shiny as one of the lead developers for M2. And prior to Shoshinkai, Perry was loud in his support for the Nintendo 64. But now - with still no PlayStation and Saturn titles unveiled - Shiny Entertainment is embarking upon *MDK*, its first PC title. So has the 'console kid' turned his back on the hardware companies on whose systems he built his reputation? Does he feel the PC is the way forward? **Edge** caught up with him at the Shiny Entertainment headquarters at Laguna Beach, California.

Edge In 1995, you were quoted saying that you were very keen to develop for the Nintendo 64. But now you have announced your next project is for the PC. Why no N64 development?

DP *MDK* was already being designed before we had decided Nintendo 64 or PC. As a team previously devoted to the world of cartridges, the N64 would have been our safest and easiest bet. However, we needed more. We had big plans for the game and needed some digital real estate to squeeze it into. The new hope became the CD-ROM-beating 'magnetic media' Nintendo promised us. We waited and waited, finally I flew to Tokyo to see it. No sign of it anywhere.

Hence the PC decision. To make us happy we thought of reasons why we would prefer the PC, like more time to work on the game as we won't have to wait for cartridges to be manufactured, for instance.

Edge What were your impressions of the Nintendo 64 at the Shoshinkai show?

DP Initially, after sitting in a plane for 11 hours and after all the hype, I was expecting the \$40,000 Silicon Graphics' experience that had been alluded to. Of course, this was not going to be the case. However, the machine was very impressive for the money. Then again, anything would have looked good after all that airplane food.

Edge Do you believe the system offers a quantum leap in performance over and above the PlayStation and Saturn?

DP From the Clive Sinclair days of British home computers, the 'QL' or Quantum Leap was no great leap at all - it was nicely packaged and that was it. I feel the same way about the Nintendo 64. Nintendo has done exactly what it needed to do to make itself a gap. The definition of the word 'Quantum' is actually, 'the minimum amount by which

with different strengths or jumping to the height you want. I guess we will get that on the Nintendo 128.

Edge Does the prospect of a Nintendo online gaming network excite you?

DP Yep - it's time. It also can turn a game that would get boring quickly into a game with thousands of hours of playtime. It also supplies real learning intelligence to play against, which is still vacant in any game I have played. On the downside, expect to lose a lot of games to hermits that live on the network.

Edge Moving away from new technology, were you surprised by the technical virtuosity of *VF2* and *Sega Rally* on Saturn?

DP No. I have been waiting for somebody to make the move. Well done Segal. Especially the leap from *VF1* to *VF2*.

Edge How was Sega able to produce such a technological leap forward?

DP The Saturn does not make you breakfast in bed - which is what the hype proposed. You actually have to do some work, and to make it perform you need a large whip.

Finally, programmers are convincing it to jump through hoops by using tight, fast RISC code, not sloppy textbook C programming.

Edge Will independent and third-party developers, such as yourself, be able

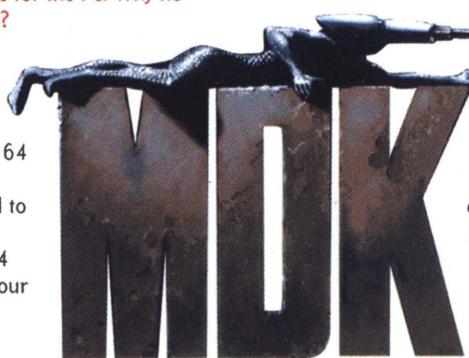
to achieve similar results?

DP Funnily enough, I was down at the whip shop last week...

Edge Has Sega actively been sharing its secrets with the development community?

DP Not really. It offers technical support. It is in Sega's interest to give away *Sega Rally* code to developers. However, Sega is making big bucks off it at the moment, why should the company give that away? It is a big decision. I doubt it will happen. But then O.J. walked - anything can happen.

Edge But if Sega hides its secrets from third-party developers, it will result in fewer quality Saturn games, and it will also discourage third-party game development because no one will be able to compete with Sega's own. Wouldn't this be suicide?



certain properties of a system can change'. So enough said.

Edge As a game developer, where do you see Nintendo 64's strengths and weaknesses?

DP The cartridge is the weakness. It removes the ability to slam in copious amounts of animation, sounds, and spectacular effects. Its strength is the highly-detailed display and the funky joystick.

Edge If you were to develop a Nintendo 64 game, how would you go about making use of the analogue/digital joystick?

DP If I was on a hover bike, I could lean accurately into the corners. The only thing that Nintendo forgot was to make the buttons analogue as well. Imagine punching

interview

Continued

DP Sega makes very good arcade games. This translates - via great teams - into very good games. That gives Sega a built-in safety buffer. However, it still needs the good thirdparty publishers and developers who enhance the credibility of the machine. Sega should adopt the same attitude as Nintendo and protect its shelf space. If this means giving code to developers to keep overall quality high, then so be it.

But maybe then *Sega Rally* fans will end up with *Sega Rally 1, 2, 3, 4...*

Edge What is your prognosis of the Saturn's future?

DP I expect a graph of success shaped like the Himalayas. As each hit pops up so will interest, then it will swing low. This will happen until all programmers get to grips

DP We are, it's just the game is secret at the moment. It is based on a whole new set of characters. No, not *Earthworm Jim*. These characters were revealed at the Toy Fair in New York. We've been keeping the whole thing quiet.

Edge Sony is claiming that with its second-generation software engines, the PlayStation is capable of running the original *Ridge Racer* at 60fps. That's an improvement of over 100%. Do you think this claim is true?

DP Totally. However, I don't want *Ridge*

The Saturn does not make you breakfast in bed - which is what the hype proposed. To make it perform you need a large whip

with the machine, then there will be a steady interest.

Edge So you see inevitable success for the Saturn, then?

DP If things stay on course and the public doesn't sell its soul for the Nintendo 64 - as they will in Japan - yes, there is room for Saturn. It has got up from the floor and just taken a swing back at Sony. Somebody should make the Sony vs Sega fighting game and write it on Nintendo 64.

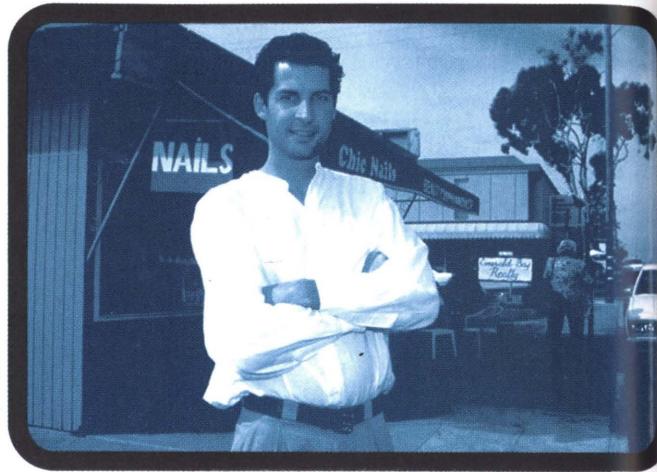
Edge As for the PlayStation, would you agree that having started out with some very impressive games, its development of late seems to have stagnated?

DP Sony is doing its best to keep 'em coming. All that we are currently experiencing is the infamous 'too many games' syndrome. Hopefully, Sony will begin to filter out the rubbish. Then you will feel more positive in general toward the software. There are a lot of very talented people working on the PlayStation. Sony is being well supported.

Edge So you've seen evidence indicating Sony will be willing to filter out bad titles?

DP I like Sony. It has done a great job selling the PlayStation, and it is just getting too popular as far as development goes. I don't buy PlayStation games anymore as I bought a bunch of turkeys that, over time, wear down a buyer's interest. It did with me.

Edge Why are you not developing PlayStation games yourself?



PlayStation software compares to the forthcoming Nintendo 64 games?

DP Nintendo has already got the filter on what I mentioned a few questions ago. That means it will come out fighting and will keep leaving the player feeling positive toward the quality of the experience. Sony, hopefully, will take the same approach, then it's gloves off.

Edge Why do you think the PlayStation did so much better than the Saturn in 1995?

DP The initial games on the Saturn were disappointing. *Ridge Racer* was impressive. Magazines, playground chatter, and the internet quickly spread the news.

Edge It seems clear the 32bit consoles are doing well. Why choose the PC as the lead platform for your next game, *MDK*?

DP It was a target we had dismissed. However, now Windows 95 is around and the hardware is finally strong enough to support a three-dimensional action game. the timing is perfect.

Racer at 60 frames per second. I want *Ridge Racer* at a screen res of 640 pixels across by 480 pixels deep. If Sony can do that, then it is smoking.

Edge So, you feel resolution is more important than frame rate? Is this true for all game genres?

DP Yes, on a road it enables you to see farther into the distance. This enables you to negotiate obstacles better and so enjoy playing more. Big pixels mean blocky vision - I don't like my vision blocked. It also adds detail - you could make out facial expressions on characters, for example - and that's important. It also enables some cool programming tricks and effects.

Edge How do you think second-generation



These prerendered shots of Shiny's forthcoming *Murder Death Kill* give some indication towards the gameplay involved. The realtime graphics, surprisingly, have a fairly close resemblance

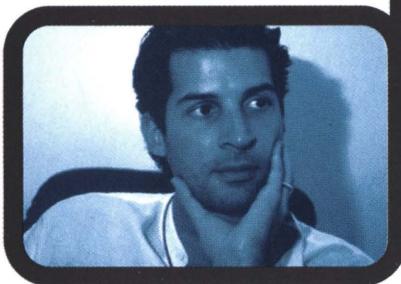
Edge There are more games made for the PC than for any other game system. Surely there aren't any gaps to fill in the overloaded PC games market?

DP A good game makes a gap. The PC market has no filter!

Edge What is the most impressive thing about *Murder Death Kill!*

DP The chilling feeling of murder and power that's portrayed. And, of course, the hi-res, realtime 3D...

Edge A lot of people are talking about 3D graphics and multimedia accelerator cards as the 'next big thing' on the PC games scene. Do you see this happening?



DP Yes, over time. But it will take time, until a killer game arrives that drives people to buy the hardware. When that game arrives, the news will spread. But it will take more than *Sonic the Hedgehog*.

Edge Despite Windows 95 simplifying things for developers, there's still a shortage of decent PC games...

DP Give it time, there is a distinct lack of whips at the moment. Spreadsheet gurus are reaching for their joypads.

Meanwhile, development companies are still reading through all the documentation. In the meantime, games like *Earthworm Jim* on Windows 95, for instance, are selling just fine.

Edge But the PC's arcade games are still woefully underpowered.

DP The PC is currently hanging in behind the console market, but dedicated gaming technology will be here soon. However, as always, more costs more.

Edge So you believe PC games on high end (although still massmarket) systems will out-perform Nintendo 64 and M2 titles?

DP Yes - it is a while away, however. It is also silly to think that 8 to 16-year-old children - our best target market - are going to be buying these machines. That is why the console market will always win in reality. Also, as console companies control the quality of their games, the PC market has no such overseer. So to clarify, the

answer is 'sort of'. I will be playing cool PC games at home, but we won't stop making console games in the office.

Edge Shiny was being touted as one of M2's premier developers. Is this still the case?

DP We were considering Matsushita's M2, but we have postponed the title until the machine hits the shelves.

Edge From what you've seen of M2 so far, what has impressed you, if anything?

DP I have not seen the final machine. The specs are very impressive, the silicon is



cooking. We are all waiting to see what dinner tastes like.

Edge What's your understanding of what Matsushita will do with the M2 technology?

DP I have no idea and that's my worry. Because Matsushita is big, it is not to be ignored or dismissed. It wears big shoes and could kick some major butt. However, I am still waiting to hear a plan. I hope that, like Sony, it really goes for it. Otherwise, it could turn out to be the most fun laserdisc player in the consumer electronics store that comes with a free joypad.

Edge What do you think about Trip Hawkins right now? Is he happy or sad?

DP Cha-ching! [grins]

Edge But from a developer's perspective, how big a problem is the fact that 3DO handed over all developer support to Matsushita?

DP Well, either we will beg them to stay or we had better brush up on our Japanese.

Edge Describe the best and worst case scenarios you could see unfurling for Matsushita over the next couple of years.

DP At best, 3DO keeps supporting developers, an M2 machine ships in September, and 3DO has something cool like *Alpine Racer* running better than the arcade machine. At worst, 3DO goes away. Matsushita is left on its own to deal with M2. It misses Christmas and it has no games and no Christmas presents. Game over.



Edge Do you think the 32bit games you've seen so far are better than 16bit games, other than their graphical aspects?

DP Yes and no. We have plans to bridge the gap. We think we have identified room for manoeuvre.

Edge Are you excited about the potential for networked, multiplayer gaming? If so, what are the problems associated with its development, and in what form do you think mass-market, multiplayer, networked gaming will eventually appear?

DP I can't wait, neither can the people who want to sell you ways and methods to do it. That's the problem, it will take time before winners, formats, and protocols emerge. Then it will be great. But then that's also what they said about VR...

Edge Who - or which software company - do you think is making the best games at the moment?



DP Sega on console, Namco on arcade, and Westwood on the PC.

Edge Are there any games you've ever played that have

made you sit up and say, 'Damn, I wish I'd done that'?

DP *Virtua Fighter 2* is technically excellent. The companies I watch and admire now are Sega's 'AM' teams, Namco, Rare, and Psygnosis. I totally respect these companies and would pat them on the back if they were in my office right now.

Edge What are Shiny Entertainment's goals in this business?

DP To stay small, potent, and focused. And to hire more Scottish people!

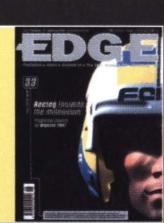
Edge We know about *MDK*. You mention that you are working on a new game for the PlayStation with a new set of characters. Can you tell us more?

DP It's for the PlayStation and Saturn. The Saturn engine is 100% RISC. It's 3D. It has moves I always wanted to put in a game. It is realtime, not FMV. It is top secret and the first snippet will appear on the Shiny World Wide Web page when construction has finished (<http://www.shiny.com>).

Edge If a friend asked you which game system he should buy now, which one would you recommend?

DP Wait for the Nintendo 64 if you don't mind forking out \$70 a game. If you like arcade games, go with the Saturn. If you're tight on cash, pick up a few Jaguars at \$50 a pop. Ouch.





You would expect a company wholly owned by Sony to be focused, laser-like, on the company's PlayStation platform, and yet the Liverpool-based outfit's upcoming roster is spread across multiple formats, not least PC. And perhaps only this platform could do justice to games like *The Fallen*, whose ambition is immense.



From its mid eighties inception as an eye candy factory for the 16bit generation, Liverpool's Psygnosis has matured into a

company clearly on the apex of the videogaming revolution. **Edge** tracked down the minds behind the mission



Psygnosis' titles have crumbled under the weight of their own graphical ambition. Since the beginning, this has been as much a hardware issue as one about game design. As the lead platform of the early days of the 16bit market, the Atari ST offered

Project psynergy

no hardware support for sprites or scrolling, so many 16bit tours de force (such as the mouse-driven adventures *Barbarian* and *Obliterator*) failed due to their graphics-heavy, and hence, incredibly sluggish visuals. However, although it was clear that the games in question were markedly inferior to many 8bit titles that had appeared only a few years before, many players were simply happy that 'arcade quality' visuals had arrived at last.

Later endeavours such as the prerendered *Microcosm* merely amplified an existing problem. With fast 3D console technology still a way off, prerendered visuals spooled off CD (a technique pioneered by Psygnosis) was the only way to create moving 3D worlds with any degree of detail. However, it was also a technique that failed to deliver any degree of interactivity, luring the player into a false sense of immersion. Ironically, it was a game that eschewed the company's graphics-intensive philosophy (*Lemmings*, created by Scottish team DMA Design) that went on to become its most successful and respected title.

Sony's acquisition of Psygnosis in 1993 marked a change of course for the Liverpudlian developers. Initially the Japanese company squandered Psygnosis' opportunities on a series of appalling movie conversions such as *Last Action Hero*, *Cliffhanger* and *Dracula*. So, with hindsight, it's difficult to see how such a successful design as *Wipeout* could have been conceived at all. Effectively, it was news of the PlayStation that facilitated a change in the company's creative direction. During the machine's gestation period, Psygnosis was in a better position than anyone to realise technology was on its way to generate impressive 3D in realtime. Paradoxically, just as it prepared to embrace another new wave of technology as it had done with the Amiga, experience enabled it to strike a balance, with *Wipeout*, between producing mind-blowing graphics and designing a playable videogame.

'There's definitely been a greater focus on the integrity of the products over the last few years or so,' reflects the company's MD of software



Il might be forgiven now upon, it's been a difficult fact to swallow. Formed from the ashes of fallen 8bit computer game publisher. Imagine. Psygnosis was an early champion of the 16bit era. The Liverpool company, founded in 1983, forged a reputation on producing outstanding graphics. And as an industry joyfully pulled out of an outdated 8bit arena, the race was on to see who could lay the foundations for the 16bit market. In this pursuit of the more frivolous traits of videogaming, how a videogame should be, but it sure worked. From the strikingly professional box artwork (by acclaimed fantasy artist Roger Dean) for games such as *Barbarian* and *Aquaventura*, to the memorable parallax landscapes of infamous Amiga showcase, *Shadow of the Beast*, Psygnosis created a new look for computer gaming. For once the artwork on the box was backed up with a game that didn't look like some crude, garish mosaic. Computers finally had games with 'arcade quality' graphics, a term that would become a standard marketing tool for the years to come.

At the time, the industry's naive acceptance of such a vision was understandable. By the mid eighties, computers were badly lagging behind in the graphics stakes. 16bit technology had entered the arcades delivering rich, colourful and detailed graphics and players demanded this in the home. The fact that most Psygnosis' games at this point bore little more than mere surface gloss was irrelevant. They sold on the front end alone, and that's where most resources were clearly directed. In gameplay terms, many of



Photography by Martin Burton

Psygnosis has released over 100 titles since it started developing software in 1983. The company is based in Liverpool (HQ, top)

*Continued*

publishing. **Nick Garnell**, 'Wipeout was the first example of how, internally, we could set about building products. It became more than the sum of its parts.' But Garnell doesn't underplay the importance of the 200-strong development team that has assembled since the Sony buy-out: 'We've got a very, very strong in-house team, no doubt helped along by the fact that Sony were involved, but we've also got a lot of talented external developers, too. All we intend to do now is capitalise on our strengths.'

The success of Wipeout (the flawed Destruction Derby sold more copies, probably due to its wider appeal), coupled with Sony's obvious influence and financial clout, meant that Psygnosis immediately touted the PlayStation as its lead development platform, expressing little interest in developing for other consoles. Things are already changing, though. Psygnosis is now a fully independent publisher that develops games for release across all formats. The Saturn already has a reasonable version of Wipeout and other titles are on the way to the Sega console soon. Titles, that in Sony's view, 'have had their day on the PlayStation.'

Whether this change of focus is down to the fact that the PlayStation has already surrendered some of its glamour is debatable. The lack of any major increases in performance in most new PlayStation software indicates that the machine's peak could have been reached too early - certainly good for the machine's launch period, but not what people want to hear now. Technical director, **Dominic Mallinson**, isn't wholly convinced that the PlayStation is already running at full whack: 'You hear a lot about pushing the PlayStation further, quicker. However, there is still a fair amount of untapped potential in the machine.'

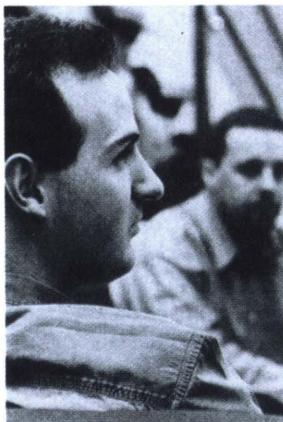
As far as other formats are concerned, internally at Psygnosis there is a certain animosity towards the Saturn, despite its recent redemption with Sega's own in-house titles. Mallinson concedes, 'We're fairly early in our Saturn development

cycle, because basically it's difficult to work with. You spend a lot of time getting bogged down with hardware details when you'd rather be programming a game - it's not the favourite machine here.' Despite this, the company realises the benefit of having its games on as many formats as possible, so it seems likely that most PlayStation and PC titles developed by Psygnosis will make the journey to Sega's machine.

Casting its eye over the next wave of console technology, Psygnosis is even hopeful that Sony arch rival, Nintendo, will grant the company a license to develop for the Nintendo 64.

'Within the development side of the company, we're serious about it - it's likely to be one of the volume platforms. At launch it will almost certainly be the most powerful console. But there are still questions being raised on the publishing side - we have to weigh up the costs of the software delivery medium against estimated success of the product.' Mallinson is also hopeful about Matsushita and M2, but the fact that neither Matsushita or 3DO has finalised a proper development program for the format means the project is still very much up in the air. The delay bringing the M2 hardware to market will, in Mallinson's eyes, mean, 'there will be other new pieces of powerful kit in direct competition. It certainly won't have the market to itself.'

Psygnosis' willingness to support as many platforms as possible embraces a long-term strategy which predicts an increasing synergy between the technology powering consoles, PCs and arcades. It's a belief shared by many, and is based around the theory that the future of 3D technology lies within scalable environments with multiple chips running in parallel. Sega has this setup in its Lockheed Martin-powered Model 3 arcade board, 3D accelerator experts such as 3Dfx (see page 10) and VideoLogic plan to incorporate their technology in arcade boards as well as PCs, and console manufacturers simply



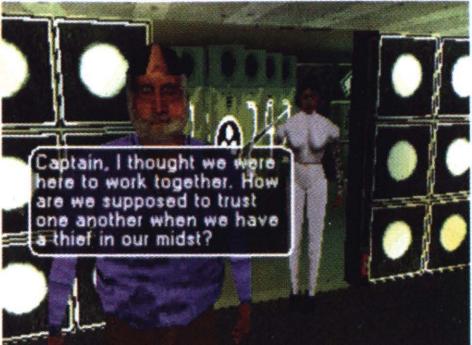
It'll all be scalable 3D. You can see this clearly with companies such as 3Dfx, VideoLogic, and Namco

Dominic Mallinson, technical director, Psygnosis

want the compatibility. 'It'll all be scalable 3D,' predicts Mallinson. 'You can see this clearly with companies such as 3Dfx, VideoLogic, Namco and Sega. Basically everyone's going the same way - there are a number of companies we're talking to about arcade projects.' Probably keen to forget the dismal performance of Sunsoft's Lemmings coin-op that disappeared without trace, Psygnosis now plans to look into developing a coin-op-based project in the next 12 to 18 months. In contrast to efforts by Capcom and Namco, it's far more likely to be a highly-specified parallel-chip machine instead of a low-end PlayStation-based unit.

Central to this broad technology strategy is the increased global prominence of the PC, coupled with the plethora of graphics acceleration hardware on the horizon. As this technology becomes viable over the coming year, Psygnosis now sees its development focus shifting

Sentient



As games become more visually complex, developments are taking place not necessarily as immediately noticeable in the gamesplaying experience. *Sentient* is one case in point – as well as providing a striking game environment, it features complex AI interaction sequences with the potential to offer a truly new style of game.

Ollie Wright, *Sentient*'s programmer, describes the game scenario: 'You play a character sent in as a medical specialist to a space station orbiting the sun, because it's having trouble with radiation sickness. Strange solar flares have been colliding with the station, and the game turns into a mystery – basically, you have to discover what's going on. Lots of things unfold as the game progresses. The station is mining exotic particles from the sun and there's lots of intrigue concerning these – some people think they're a power source, while others have different beliefs. The real reason becomes clear as the game progresses...'

One of *Sentient*'s particular charms is in its realistic approach to characters – they will talk to each other even when you aren't

around, they all have opinions about each other, and will react differently depending on how you have treated them in the past. All of the NPCs (non-player characters) have assigned jobs, which they independently attend to during the game, but their routine behaviour must be co-ordinated to further the story. 'We're having to combine the character's normal behaviour with scripted behaviour so we can create situations that are triggered by any number of means,' Wright reveals. 'It could be simply entering a room, for example, or it could be a sequence triggering off events.'

Most of the solid 3D characters (of which there are 64, spread over five different categories) were designed from top to toe by **Christian Furr**, whose credits outside videogames include being the youngest ever artist to be officially commissioned to paint a portrait of Her Majesty the Queen. Furr drew from his experience in traditional fine art work to give each character a distinctive look. What's more, each NPC has a range of expressions that change depending on mood, which



Sentient's lead coder, Ollie Wright (left), and graphic artist, Paul Holders

further captures a feeling of a living, breathing game world.

Perhaps the hardest to categorise of all Psygnosis' current projects, *Sentient* is certainly going to be a title to watch. It's set to be released first on PlayStation and follow onto the PC shortly after, but 'at the moment it's too big for the PlayStation's two megabytes,' according to a rather perplexed-looking Wright. 'But we're working on that...' 

The Fallen

Despite Sensory Deceptions' freshness of face, the ambition of its first project would put the fear into hardened development veterans. 'The idea of the game in a nutshell is to survive; the structure is totally non-linear. Whereas other games set up a level system with predefined targets, ours is not like that – you dictate what you want to do. You have the framework of the game to go by, but once you've got a feel for how everything works, it's up to you to,' says **Dave Anthony**, lead programmer and MD of the company.

The plot running behind this freeform approach concerns the Earth 30 years into the future. A criminal group known as The Angels are supplying the public with a bliss-inducing electronic implant known as Angelica, which has the eventual, unfortunate, side effect of rendering its participants insane. A law enforcement agency called The Lords have been assigned to combat the supply and use of Angelica, while another terrorist group called RAIST further complicates matters for the city's populace.

'We've set up a 3D world

which has characters, buildings, objects and vehicles in it,' says Anthony. 'We plonk the player, as one of these characters, into the world, while all the other characters are busy going about their business. You can do just about anything in this world – if it's going on between other characters, you can join in.'

Sensory's Pete Smith picks up the baton: 'You can get as involved in other people's lives as you want, from simply passing on information to someone to physically murdering them. After a murder, of course, there's a lot of things that go on from an information point of view – you might want to tell someone about it if you've witnessed it, or grass someone up for money. And everything that happens has knock-on effects with everyone.'

Accruing cash will be high on the agenda, and trading between characters will feature heavily. 'Everything that's sold can be used,' says Anthony. 'It's not like you're going, "Oh yeah, I'll go

and buy some minerals for six quid," or whatever; instead you're buying, say, six rocket launchers – and if you're walking down the street and want to pull



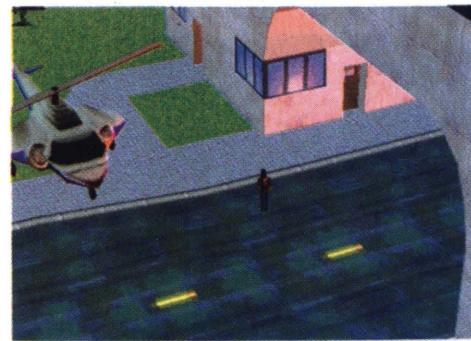
Men on a mission: Sensory's Pete Smith (left) and Dave Anthony (lead coder)

one out and blow someone's head off, you can.'

Interaction between characters is another important area. 'We've created a sequence of menus so you can build proper sentences,' says Anthony. 'If you want to ask how much something costs you construct the sentence together from a small, considered list. For this

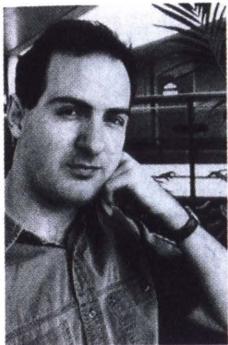
kind of interaction we had to write an intelligent parser that could correctly handle grammar – especially if the game is going to work in a foreign language – in itself a huge task.'

The team are confident they can pull off such a potentially groundbreaking game. 'Before they've seen the game, everyone looks at the specifications and comments on our aspirations. But every time we actually demo it, people go away thinking...' Smith interjects: 'Well, we haven't had one single negative response about the game.' 





Continued



Dominic Mallinson, technical director at Psygnosis, keeps a constant eye on the next generation technology agenda

towards the PC, with its current lead platform, the PlayStation, following closely behind. The PC affords us more flexibility with games,' admits Mallinson. 'Being a console, the PlayStation does have some limitations and a lot of our games are now going to appear on the PC first. There's no reason for that other than the PC finally becoming a games machine.'

This logic is grounded in Psygnosis' realisation that the titles it starts now won't be completed for around another 18 months. By then, the PC should have gained enough of a foothold in the 3D market to compete favourably with console technology. This, coupled with the machine's huge amounts of RAM, good video playback and unrivalled connectivity, should ensure that the PC becomes the dominant force in videogaming. 'It's really a change of emphasis in lead platform rather than support,' Mallinson continues. 'Our top two platforms are PC and PlayStation and it's just a question of which machine we lead on. At the moment it's still PlayStation, but I think we'll see it become the PC more and more.'

The PC 3D market is an area Psygnosis is taking very seriously. Currently courting several of the bigger players, including 3Dfx, VideoLogic, and ATI, the company realises this

splintered market will probably become dominated by three to four major companies and will be fought mainly on price and performance. Mallinson anticipates one of the main contenders, NEC's VideoLogic chipset, as 'a bit of an enthusiast's product' and expects lower-cost cards such as S3's Virge and ATI's 3D Rage to support the lower-end of the PC market. Psygnosis has clearly stated an on-going commitment to support the majority of current and forthcoming 3D technology. However, an early demo of 3Dfx's technology was known to have excited internal techheads.

Where the confusion will arise is in the support of the individual cards. According to Mallinson it will be a two-tier objective. With Microsoft's Direct3D still incomplete, Psygnosis sees emphasis initially being placed on specific deals with hardware manufacturers to get product out there for certain cards, mirroring efforts by companies supporting early arrivals such as the

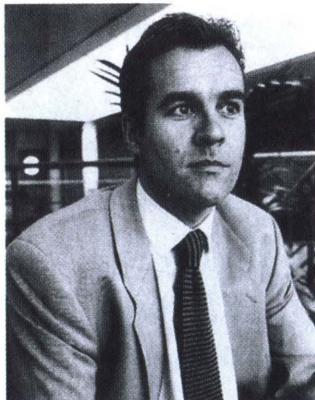
nVidia and 3D Blaster. After this, Mallinson hopes it'll become clear who the top three or four players are - 'some will be high-end quality products, some will be cheapos.'

Psygnosis does foresee Microsoft's Direct3D API taking over at some point, though, and then the company will move to specifically tune titles for a selected number of cards. 'We'll always pick one with a high performance and quality as being the show-off board,' says Mallinson. 'despite the fact that such technology may only represent a small market and there may not be that many users out there.' In this case, most of the code will be identical for each card, but things like the amount of texture RAM available, the resolutions that are supported and features such as anti-aliasing, will be supported individually to maximise each card's potential. 'It's a question of tuning all those features to best exploit the technology. Below this will be a lowest common denominator of Direct3D, which will support all Direct3D boards. If there are a lot of other players out there our titles will still work on them, but they may not be quite so optimised as the others.'

Whether Psygnosis

is developing software for the internet, PlayStation, PC or arcade, Nick Garnell sees the means of delivery or perennial format war as 'irrelevant'. 'We don't really care whether we're writing product for a particular home videogames system, arcade machine or online environment via the PC. As long as the technology allows it, the point is to come up with new ideas and to be innovative about the software we produce.'

It's clear that, despite Sony's marriage to Psygnosis, the company now has a free reign to produce only those titles it wants to. With *Tenka: The Fallen*, *Sentient* and *Wipeout 2097* all covering different bases, it's a plan that seems assured to deliver some



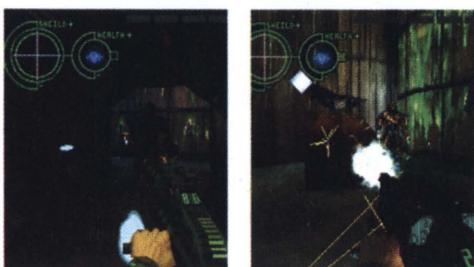
If you deliberately set out to fill a hole in a software catalogue, you're probably not going to get it right

Nick Garnell, MD of software publishing, Psygnosis

bold and varied interactive entertainment. 'We've essentially set out what products we want to do,' assures Garnell. 'There's been no direct control from Sony, only influence. We're not going to try and cover every single genre. If you deliberately set out to fill a hole in a software catalogue and say, "We ought to have a beat 'em up, or a shoot 'em up," you're probably not going to get it right. I think the creative spark has to come first.'

Psygnosis' understanding of the needs of gamesplayers, as well as those early adopters simply looking for their next graphical kick, places it in a position to create games which are as well-designed as anything Japan can muster, and as diverse as that for which the UK industry used to be famous. The company's next wave of videogaming should be an interesting one to ride.

Tenkä



Tenkä, the working title of *Psynosis'* forthcoming first-person shoot 'em up, looks destined to be rivaled only by *Quake* as the year's most anticipated game in this expanding genre. The fruit of over two years in development, *Tenkä*'s 3D engine is complete and running smoothly, with levels designed in a distinctly non-*Doom* style, and characters rendered in full polygon form.

Psynosis claims *Tenkä* will offer the most flexible player character ever seen in a game of this style: his abilities range from walking to running, jumping, sliding, side-stepping and looking up and down, and the control interface is being designed with the emphasis on ease of use.

And, unlike games like *Doom*, where enemies line up to form so much cannon fodder, *Tenkä*'s denizens have very significant roles in the game. 'Certain enemies have specific orders within their environment – by killing them you can take their orders, giving you access to certain areas,' reveals **Paul Hilton**, chief designer. 'Maybe one's been told to shoot down to the construction yard where all these bionoids are being

generated, and if you take him out you're able to go down there yourself and control construction, while others will just give you a security level which gives you access to things like gun power-ups and switches, and the little enemies, the one-shot wonders that just drop dead without much of a fight, won't give up anything.'

The finished game will offer 21 levels (two of which will be initially hidden) set over nine distinctly different graphical styles. The team promises multi-directional conveyor-belt floors, destructible windows, sentry guns and numerous spot graphical effects such as steam. 'We're certainly up there with *Quake* and *Duke Nuke 'Em* in terms of complexity,' Hilton claims. 'We've got 3D multi-directional mazes, moving trip wires, massive crushers... We intend to just squeeze in as many gameplay features that we can possibly fit in there.'

Graphically, *Tenkä* certainly has the edge over almost every similarly-styled game doing the rounds. Its solid 3D characters make the experience significantly more realistic than the flat 2D bitmaps of the likes of *Duke*



Psynosis' Paul Hilton (centre) has his work cut out in bettering id software's *Quake*

Nuke 'Em. Hilton is equally enthusiastic about *Tenkä*'s use of lighting effects: 'With the lighting and shadows we're using we can hide enemies and make them jump out or fall down onto the player – it can get really scary, especially with the ProLogic sound.'

Despite the game's myriad technical advances, Hilton is, somewhat refreshingly, still able to look upon it at its most grassroots level: 'At the end of the day there's nothing better than running around killing things,' he laughs.



The City of Lost Children

The 3D virtual world created by Infogrames in *Alone In The Dark* opened up an entirely new way for developers to deliver gaming universes. Although recently it has been imitated successfully by Capcom with *Resident Evil*, few developers have a better grasp on the artistic value of the genre as *Psynosis'* French development arm, the team behind *The City of Lost Children*.

Based on the acclaimed Caro and Jeunet Brothers' film of the

same name, *City* is the story of a little girl looking for her lost friends. Through her travels she encounters many bizarre twisted personalities, some of whom are helpful, and some of whom are diabolically harmful.

Unlike many games that put the player in the shoes of a gun-toting maniac, *City* casts you in the role of the relatively helpless girl. Situations that would seem comical to a more physically endowed character are therefore moments of intense danger to



this small child. The resulting gameplay offers a novel approach that, coupled with the game's aesthetic value, make this one of *Psynosis* most interesting releases set for 1996.



Zombieville

Psynosis' other 3D adventure for 1996 sees you adopting the persona of Matthew Black, chief investigative reporter for The Daily News. Upon receiving a tip-off concerning a failed secret military project, you begin an investigation which takes you to an abandoned research site. A couple of months ago the site was redesigned to a different type of research, since which an



aged local man has gone missing and the entire area cordoned off. This promising storyline manifests in game form as realtime polygon characters set against a series of prerendered backdrops. *Zombieville*'s gameplay will contain numerous puzzle-type challenges each having counterparts: for every action the player takes there will be a good reason not to undertake it.

Backed up by a script by professional author, **Mary Gentle**, a voiceover by Yank comedian, **Greg Proops**, and screen resolutions running up to 640x400 in SVGA, *Zombieville* bears all the quality hallmarks that *Psynosis* has striven so hard to adopt in recent years. Whether the components come together to form as convincing a whole to rival the likes of Capcom's similarly-themed *Resident Evil* remains to be seen.



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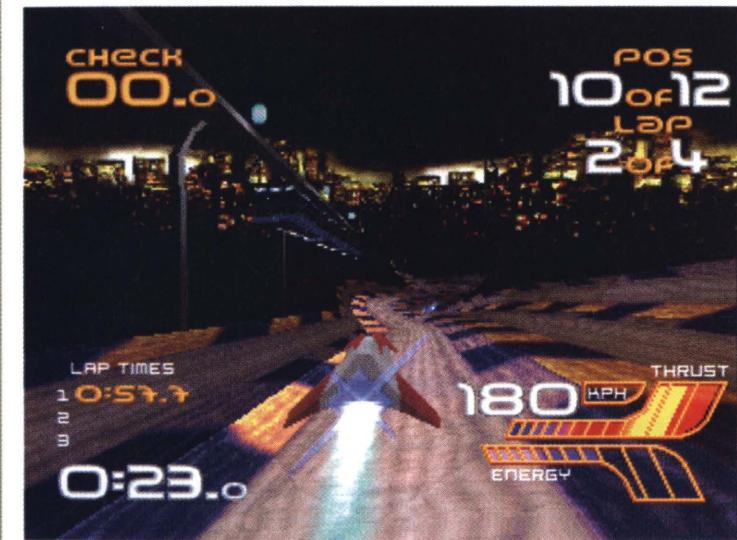


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Wipeout 2097



Photography by Steve Leggat



Visually, Wipeout 2097 has an immediate edge over its predecessor with its scenery animation (moving monorail, main). Nick Burcombe (top, left)



New Designers Republic imagery (above) will again play a large part in the sequel, with design help from Nicky Caruss Westcott (right in photo, top)

Despite the machine's Japanese origins – and, indeed, the efforts of Namco with its peerless translation of *Ridge Racer* – it was Psygnosis that squeezed the most breathtaking visuals out of the PlayStation during its first year of life, with *Wipeout*.

Given the first game's success, a sequel was inevitable, and it's currently taking shape under the guise of *Wipeout 2097*, not simply *Wipeout 2* – Psygnosis believes that moniker to be too predictable, something the *Wipeout* branding aspires to avoid.

The chief difference in the follow-up appears to be its difficulty setting, as **Nick Burcombe**, designer of both *Wipeout* and *2097*, explains: 'The major change is to address more people with this one. Not really with the concept – that stays the same; it's still a hover-based racing game with weapons – but the original was too hard: winning three laps in first place was a goal a little bit beyond a lot of people.'

'People had taken hold of the idea that they loved the music, they loved the speed, they loved its style, they just seemed to get a bit frustrated that they didn't make any progress at first...'

'It was a simple case of getting people to change their thinking when playing a game,' reckons **Glen O'Connell**, Psygnosis' PR executive. 'They couldn't relate to another game of this type, as nobody has ever succeeded with the concept before. People played it like, say, *Ridge Racer*, and then got confused when they couldn't get anywhere. We've solved this problem somewhat in the follow-up by radically changing the structure of the game, without alienating fans of the original.'

Nick agrees: 'So many people couldn't get their heads around the fact that they were actually flying, not just driving a car. You couldn't just point the craft in a direction like a car and expect it to slide round into the corner – it's got this nice, weighty feel to it. And it does take practice; it's like any of those games with gravity and inertia. As with *Thrust*, for example, the first time you play it's like, bang, straight into the mountain.'

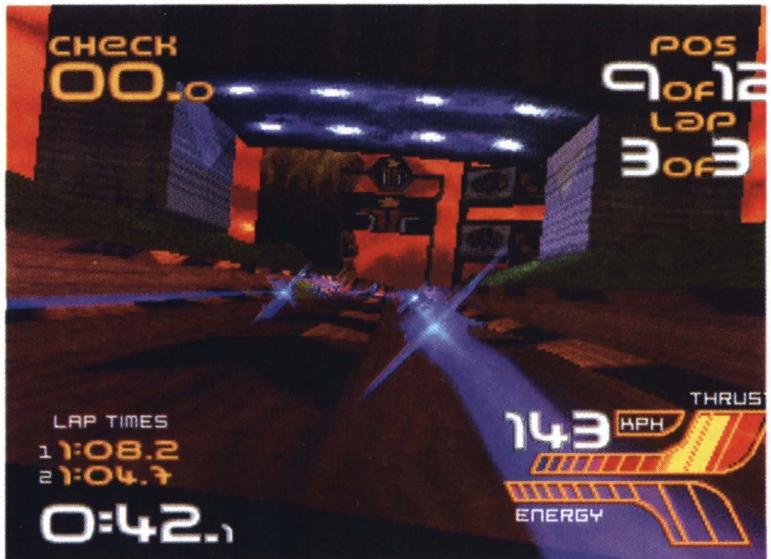
As well as easing the player into the action more gently this time around, the *2097* team have

had a bit of a rethink about the weapons and pick-ups that played such an important part in the original. 'There was no particular emphasis on where the weapons grids were placed; there was nothing special about them because after using one you could just pick up another in a couple of seconds,' says **Nick**. 'So they're going to be more strategically placed and they're going to have a much bigger impact because each ship has a damage level which you'll need to replenish.'

'It won't be like in, say, *Destruction Derby* or something like that, though. In some games, the worse you do, the harder it gets to play, because when you get damaged it starts affecting the controls – we're not going to be doing that. But if you're down to a certain damage level you'll be able to pick up energy – by visiting a kind of pit lane like in *F-Zero*'.

As well as eight new circuits and 11 weapons in total, there are now four racing speeds, the slowest of which, *Vector*, has simplistic circuits and enemies with toned-down hostility; the hardest of which is significantly faster than the original's *Rapier* class. Enemy craft, of which there will be up to 15 on-track at any one time, have improved artificial intelligence, and collisions between crafts are now more accurate than before.

Though *2097* retains what is essentially the same 3D engine as the original (which Psygnosis insists is still the most powerful one currently in existence on the PlayStation), graphically there are numerous enhancements, chiefly in scenery animation and the appearance of the new weapon effects. By re-using the original engine the team have been able to



From little acorns...



2097's big improvements are not visually apparent; it's gameplay that has been given an overhaul

focus upon tightening up factors such as attention to detail without spending valuable time on what it refers to as 'non-game-related problem solving'.

As well as *Wipeout*'s graphical excesses, it was, of course, lauded for its aural content, too. Glen believes this aspect added to the game's uniqueness: 'You couldn't simply throw those bands [Chemical Brothers, Orbital, etc.] into another game and expect it to be as successful – even if you had the Designers Republic imagery and the music in the game, in fact – because *Wipeout* was about a whole concept. People will try and copy us, though, which is flattering.'

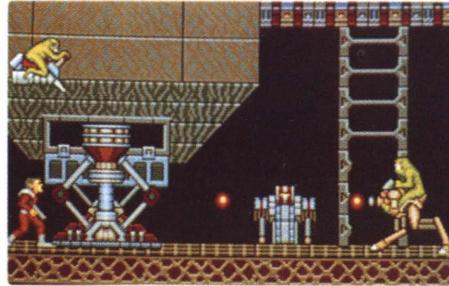
The music of *Wipeout 2097* is certainly being paid a great deal of attention. 'I'm off down to London next weekend to finalise a deal,' says Nick. 'We're probably going to be using all named artists in conjunction with a few major labels. The separate compilation album is going to have a bit more credibility than the last one, which didn't have much to do with the game – except for the Orbital track – which was unfortunate, really. I'd like the music to go out and promote the game separately and the game to do the same for the music. The difference now is that people are coming to us and saying, "We want to

do this and we want to do that," whereas before we approached them.'

Such a situation is hardly surprising, as Glen points out: 'The advantage for the music industry is that there are around half-a-million people who've played *Wipeout* in Europe, and each one has therefore heard the Chemical Brothers' track. If you're a credible dance label, yet 50,000 12-inches is a massive hit for you, there's an immediate benefit. And we're talking about playing music through stereo televisions, not PC speakers. And then you have people who run their Playstations directly through their stereos...'

The inclusion of only dance tracks certainly fits the tone of the *Wipeout* brand, but what about gamers who simply don't appreciate the scene? 'There might well be people who aren't going to like the music we use... so we'll do a platform game with Oasis in,' chuckles Nick.

The team reckons they're around 40% into the project graphically, 50% in coding terms, 90% in design, and 0% in terms of tweaking! The latter aspect is, of course, where many games are made or broken, and if the team can achieve its specific goals in this department, *Wipeout 2097* could become an even bigger hit than its precursor.

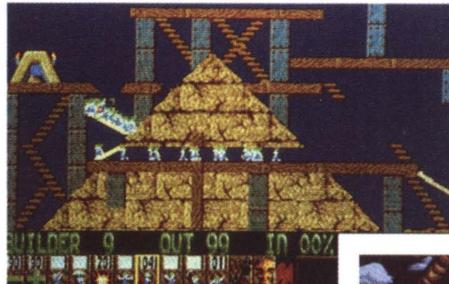


Obliterator and Barbarian offered pretty graphics, but were spoilt by ill-conceived gameplay

Psygnosis' game résumé is a chequered one, featuring titles ranging from the primitively-presented yet highly playable, to the graphically-swollen but ultimately shallow. These two extremes have, paradoxically, both proved markedly successful, *Lemmings* – licensed to practically every modern-day format in existence – arguably

made the company its fortune and *Shadow Of The Beast* set a standard in graphics that alone was force many an Amiga owner to part with hard-earned cash.

Its early endeavours were clumsy affairs, hampered by poorly-realised interfaces and, therefore, weak playability. But, slowly, Psygnosis has learned to strike a balance between style and content, as

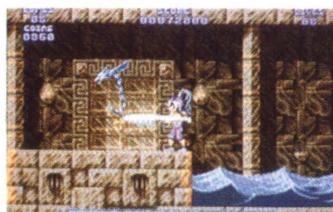


DMA's Lemmings (above), one of the most popular videogames of all time, is the game that made Psygnosis. *Shadow of the Beast* (right) was a technical tour de force

thousands of *Wipeout* fans would attest.

The company's choice to encourage partnership with external development teams has certainly borne a significant amount of fruit. *Destruction Derby*, created by Reflections, was, technically speaking, one of the most impressive games to hit the PlayStation while it was finding its feet, while older titles such as *Leander*, an Amiga title by Traveller's Tales, was one of the first western games to successfully ape Japanese presentation values.

A combination of triple-A grade in-house development coupled with choice external input represents the way forward for Psygnosis. If the company can continue its current trend, success seems inevitable.



Psygnosis' mixed bag (clockwise, from top left): Traveller's Tales' console-style Amiga platform game, *Leander* (1992), the depressingly tawdry movie license, *Dracula* (1993), the R-Type-inspired *Menace* (1990), and *Blood Money* (1990) – one of a number of games to use Psygnosis' distinct look

Resident Evil

Format: PlayStation

Publisher: Capcom

Developer: In-house

Price: ¥5,800 (£40)

Release: Out now
(Japan & US)
August (UK)

Supplier: Mega Games
0171 372 4356



Capcom's reputation for experiments in 3D space is non-existent, so it's especially surprising that *Resident Evil* should be such a convincingly solid and successful action adventure. Just try to ignore the shots and captions on the upper half of this page, unless you want some of the scariest moments a little bit spoiled...



Evil has its fair share of shock entrances – the doberman smashes through (above) and the spider drops to advance (top right). Sharks are harmless once the water is drained (right)



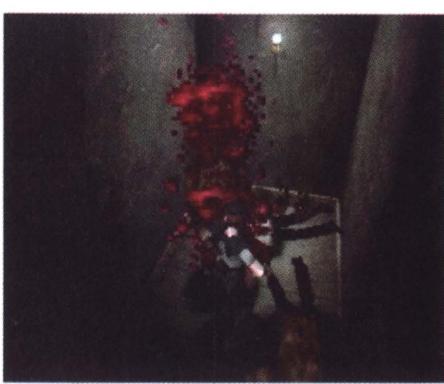
Realtime cut-scenes permeate the action with episodes providing suspense, mystery and intimidation. Some of this imagery is revolting

The fervid anticipation that has swelled around *Resident Evil* (known as *Biohazard* in Japan) has mixed implications for the PlayStation. Anything that generates this sort of word is surely welcome and yet at the same time there is a neediness to the enthusiasm that should give Sony pause. The PlayStation had a weak Christmas line-up and since then, despite a handful of worthy efforts, there's been a steady dribble of mediocrity. With Sega biting back and the N64 now almost close enough to be worth holding onto your cash for, Sony needs to deliver some pretty hot stuff pretty damn soon if it's to maintain momentum. Fortunately for it, and for gamers across the globe, *Resident Evil* delivers in spades.

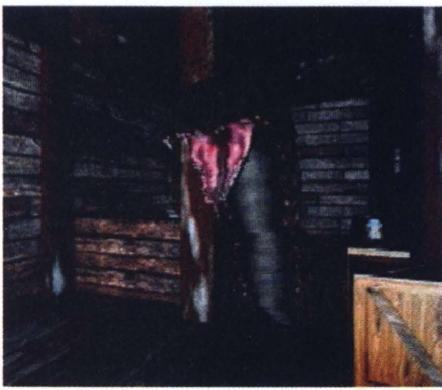
Doubtless the reader will already be glancing agape at the screenshots that accompany this

review and, let it be known, what you see is what you get. *Resident Evil* is *Alone in the Dark* directed by George A Romero with the design sensibilities of *Myst*. An enormous, implausibly beautiful arcade adventure, designed with the express purpose of frightening the player to the point of nappy-changing while inviting them to commit acts of unbridled violence against the enemy. You wouldn't ask for more if you rubbed your PlayStation and produced the game genie himself.

To enter Capcom's 'world of survival horror', the player takes control of one of two soldiers, Chris Redfield or Jill Valentine, both members of STARS (Special Tactics and Rescue Services) an SAS-type unit who become stranded in a vast mansion while investigating reports of genetic mutations roaming the countryside. Two things become immediately apparent on arrival: the



One of the more satisfying elements of *Resident Evil* is the barbaric annihilation of the ever-advancing zombies. Although decapitating is gratifying, the one-shot grenade launcher (above) is more efficient



Giant cobras are infrequent, but certainly terrifying and necessary. A new exit is created by this beast's entrance, for example (top)

source of these abominations of nature is the house itself and the only way out is to solve the many traps and conundrums that obstruct your progress and blow away anything that moves. The scenario is familiar enough. The implementation is far from it.

Capcom has truly performed a miracle with this game. Chris and Jill, like all the 'characters' in *Resident Evil*, are fully texture-mapped, light-sourced polygons operating in realtime within lavish prerendered backgrounds. The effect is startling. Such is the sophistication of the light-sourcing that wherever your character is and however flamboyant the light and shadow effects of the scenery are, you never look incongruous.



Some of the deaths are incredibly detailed and spectacular. Here you are crushed by a boulder

Which contrasts sharply with, say, Infogrames' recent *Time Gate*, where the polygon figures look hopelessly inadequate even against backgrounds that boast a fraction of the detail of *Resident Evil* (words alone fail to do justice to the fanatical richness of *Resident Evil*'s art design, where even the wallpaper and carpets warrant admiring scrutiny). Moreover, the polygon animation is splendidly fluid and realistic, allowing for precise, confident control of the player character and alarmingly believable movement on the part of your foes, be they zombies, werewolves or Fiat Cinquecento-sized spiders.

Progressing through the mansion and its environs is a tense and exhausting business. Capcom hasn't coined this new genre 'survival horror' for nothing. Half the puzzles, which range from the moronic to worthy of MENSA members, yield the simplest of all possible rewards: ammunition. There's been nothing in other games to compare to the panic and despair that you feel as you hammer shot after shot into an advancing zombie, taking off his arm and half his leg as he lumbers forward, only to hear the dull click of an empty service revolver magazine. Fortunately, as well as increasingly appalling creatures (wait till you get a load of the shark), exploration brings some hefty guns including a shotgun and a bazooka. 'So what are you gonna do now, huh?' you cry triumphantly as chunks of smoking zombie spatter the room.

Everything in *Resident Evil* is geared towards suspense: the skewed camera angles, the haunting strains of the soundtrack, the fact that you can run forwards but only retreat in painfully slow steps. In fact, the only blemish on an otherwise stainless product (apart from some acting in the cut-away sequences to make the cast of Hollyoaks blush) is the difficulty level. Suspenseful though it may be, it can be all too easy to loose off a couple of rash shots in an awkward position only to find yourself with your trousers round your ankles, your neck in the mouth of a flesh-eating ghoul, and your last save point about six rabid wolves and a snake away. Still, *Resident Evil* was never destined for the faint of heart. Where it is destined for, however, is the PlayStation pantheon. With the notable exception of *T2*, *Resident Evil* is the best yet. **E**

Edge rating:

Nine out of ten



Rather than allowing an unlimited number of objects to be carried, *Resident Evil* restricts the amount to eight. However, trunks (left) can be used to store and collect useful items



When on this balcony, the statue can be pushed over the edge to kill the zombie below and reveal a jewel



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MORE GAMES THAN ANYONE ELSE!

Edge dives into the swelling, and often perilous, waters of multimedia, searching for pearls of interactive entertainment

nuMedia

The merging of technology, intellectual properties and design talent is the single biggest challenge facing interactive entertainment. While the majority of videogames continue to scamper down the same narrow path, often satisfying the lower common denominator of consumer taste, multimedia (for want of a better term) is slowly making good use of a broad base of resources and is tackling a far wider remit. As with the majority of videogames, the quality threshold is still universally low, but developers are beginning to grasp the fundamental concept of interactivity, making some CD-ROMs a pleasure to navigate, instead of a chore.

Besides a selection of videogame-related books and seductive techno-gadgets, nuMedia starts with a look at interactive music CD-ROMs. From the current torch bearer, Sting's *All This Time*, to the lowly embarrassment of *Junglism*, CD-ROM has the potential to embellish music with a wealth of informative and entertaining annexes. Similarly, given the increasing common ground shared by the exponents of electronic music and those working in the videogame industry (just as *Leftfield* powers *Wipeout*, contemporary techno manages to sound like the C64!), Edge has selected albums that, through their use of technology, are blurring musical boundaries and shaping the future of contemporary music. The approaching symbiosis of videogame and music companies will be interesting to watch.

While nuMedia is another example of Edge augmenting its videogames focus with coverage of a wider agenda, its core focus is still on videogames, not to be ousted by a mix of more extraneous content. Edge will continue to cast an even more discerning eye over videogaming, by consistently unearthing the technology, software and pioneers that shape the future of interactive entertainment.



Do books and music albums belong in a new section dedicated to reviewing fresh forms of interactive entertainment? It's probably best not to think about it too much, and instead be cheered by the fact that the office stereo now hosts the likes of Underworld and Faithless rather than previous staples Aimee Mann and Tori Amos.

in association with

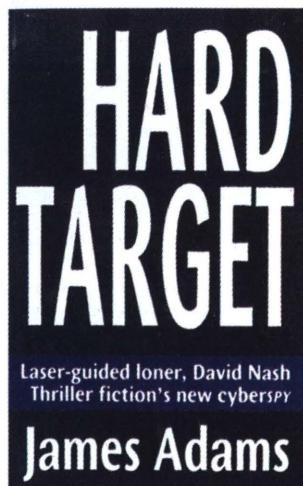
ocean

books

Hard Target

- James Adams
- Michael Joseph Ltd. £9.99
- ISBN 0-7181-4137-7
- 310 pages

National defence departments and intelligence agencies aren't the only ones to feel the pinch of post-Glasnost redundancy. Spy fiction writers have also been forced to evolve and diversify, and *Hard Target* latches onto the new



public enemies - international crime syndicates, drug cartels, unsanctioned arms dealers and, yes, hackers.

Author James Adams recently flirted with the sphere of videogaming by scripting Activision's *Spycraft*, and his experience as a defence journalist means he's at his most readable when passing on authentic secret service anecdotes or relating military procedures. The premise is intriguing and contemporary, posing the question, who do you think is now employing all those agents and 'specialists' trained for the cold war?

It's just a shame that the characterisation hasn't caught up. Protagonist David Nash remains the classic rogue male, a loner with honed survival instincts who shoots and stabs his way from one clandestine incident to the next with only a token pause for remorse. His two-dimensional acquaintances are introduced by the make and calibre of their preferred firearm, and the dialogue is a vehicle for explanation rather than development. If a novel wants to address biological weaponry with any degree of seriousness, no hero should ever be allowed to deliver the cliché, 'If something like that were to get into the wrong hands...' (page 91).

Unfortunately for Adams the book is being sold on its hi-tech espionage

The Dig

- Alan Dean Foster
- Corgi, £4.99
- ISBN 0-552-14490-8

From the epic LucasArts CD-ROM, *The Dig* follows the story of Boston Low, NASA shuttle commander extraordinaire who shies away from the limelight in favour of his quiet coastal retirement. When an asteroid threatens to collide with the earth, Low's sent up into space with bog-standard crew extra (who leaves the plot very shortly), a scientist (for those all important explanations) and a female reporter (for plot development). Their plan to alter its course falls flat when, surprise surprise.



it turns out to be an alien craft, whisking them off to a strange new world...

Game plots may be improving, but they never really stand up to literary criticism - the commander is rugged, the scientist weak and excitable, the reporter headstrong, and the alien world weird and mystical. Stuffed full of predictable twists.

contrivances, inconsistencies and repetition, this is quite an enjoyable read for exactly those reasons. Foster's style is easy-going yet smooth and efficient, making for non-taxing entry-level sci-fi at its best from the master of novelisation responsible for the *Alien* series and *Spellsinger*.



Impressively frenetic pace Adams' portrays. The action, machismo and sadistic violence will provide passing thrills for the undemanding reader. But there's something paradoxically old-fashioned about this caper, and you can almost sense a yearning for the days when the bad guys gave themselves away by pronouncing their 'w's as 'v's.



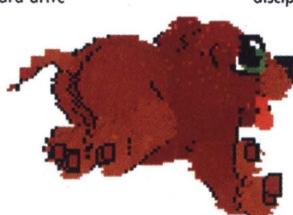
multimedia

Dogz

- PF Magic
- PC or Mac (dual format CD)

If you're the sort of person who just can't use their PC or Mac without a custom desktop background and Homer Simpson samples for every possible activity, then it's quite possible that a pet dog living on your hard drive will seem a logical progression in personalising your lifeless box of technology.

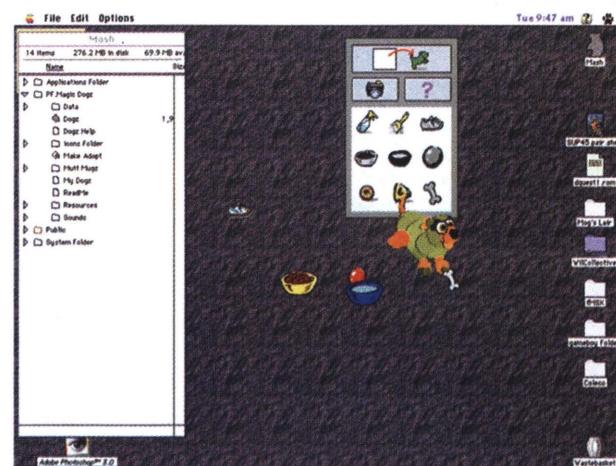
Dogz certainly isn't a new idea. Years ago many a Commodore 64 owner chuckled with malicious glee watching their tiny virtual house guest turn green with starvation, in David Crane's *Little Computer People*, and PF Magic's new 'pet on your PC' is nothing but an update on that crusty old gem. After



'adopting' your pup (who grows to be a 'proper' dog in around four months, so long as he is fed and pampered like all good puppies should be) you'll either find the cleverly-animated hound a constant hindrance to productivity, as you teach him to balance a ball on his nose and roll on his back, or, alternatively, incredibly annoying, as he constantly howls for attention (at which point a quick disciplinary squirt with the water spray can cause immense satisfaction). In any case you'll need to feed him 4Mb of free RAM, alongside any open applications, should you want

your dog instantly available for that quick game of tag.

Taking the idea maybe a little too far, there is now a *Dogz* web site (<http://www.pfmagic.com/dogz/>)

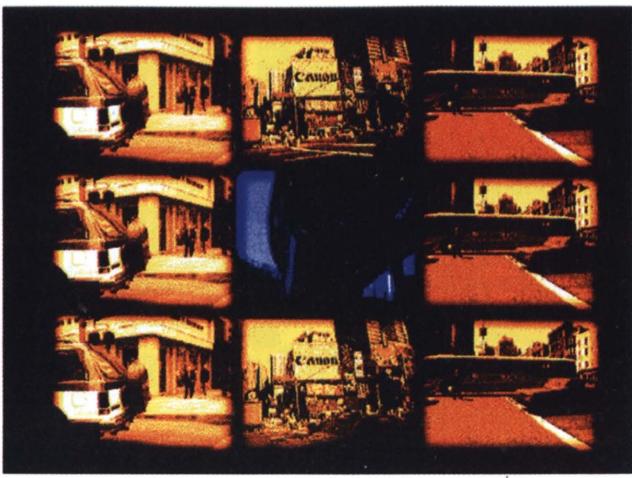


For animal lovers who feel their work hours could be spent more productively nurturing a puppy, *Dogz* provides the perfect answer

at which you can register your new best friend and even enter him/her in virtual *Dogz* shows. Although after wading through page after page of

'mutt mugz' snapshots you just might end up asking yourself why you spent so much money on a personal computer in the first place.





Modified FrEQuency

While the music industry grapples with the problem of creating music CD-ROM 'product' which might 'shift in megaunits', Modified, a bunch of painfully hip lads from Bath, have fashioned *FrEQuency*, a music and visuals CD-ROM which will send all right-thinking clubbers with PCs and Macs into raptures.

FrEQuency thrusts you behind a realistic-looking mixing desk, with all manner of electronic kit gathered below a sort of projector screen area. Click on different items of kit, and you'll launch loops and samples, or else abstract, frenetic and strangely disquieting visuals, such as you might find in a video accompanying a release by some art-house techno band.

An impossibly huge store of MIDI files means you can create music to suit any mood, once safely ensconced behind *FrEQuency*'s mixing desk. Jungle, hip hop, trip hop, trance and techno beats, apocalyptic vocal samples, chilled abstract warblings and whooshy atmospherics can all be set off as required. Getting mellow? Just drop the beat and add some more effects

and, hey presto, you've got an ambient track. You can even get the visuals to noodle around in a chilled manner, if required, or pull in bits of your favourite music CDs.

This, surely, is the point where CD-ROM technology and music meet to the greatest effect, with you controlling your own warped audio-visual world. This is also the only CD-ROM *Edge* has ever seen which works best when you're completely blasted. *FrEQuency* offers a tantalising glimpse of the future, and it is already mushrooming thanks to a big new Modified website containing heaps of extra MIDI files. Be warned: it needs a quick machine with a decent sound card, although 3DO and PlayStation versions are planned; and, at the time of writing, it was still not ready to ship - *Edge*'s copy lacked such niceties as an install program. But if you manage to track down a copy, steal the money to buy it, if necessary.

This is the first music CD-ROM with a function beyond milking some fat-cat artist's fanbase of even more hard-earned wedge. Make sure you buy a copy before the music industry rips off its basic idea and gives it the corporate treatment.

Supplier Modified
Platform Windows 3.1, Windows 95, Mac
Price TBA

and Fantastic, have gone a step further than the others by creating a CD-ROM version of their compilation. This is a fairly typical multimedia CD-ROM, with large amounts of digitised video. It's split into three sections, entitled The Labels, Interactive Manchester and Virtual DJ. The first two sections are a predictable mixture of cheerfully amateurish video introductions and copious textual information. But potentially the most exciting section is the virtual DJ booth.

Sting All This Time

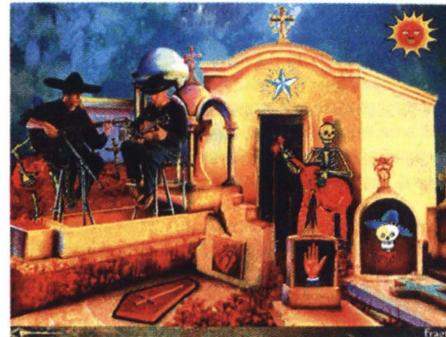
Sting has rather a reputation for being a constant source of irritation, with his whiny voice, pompous musings on the nature of songwriting, embarrassing forays into the Amazon and so on.

Thanks to *All This Time*, it is now clear that he is aware of this. And that he is troubled by it. It is clear, because he spends a good proportion of *All This Time* making fun of himself. In fact, *All This Time* leaves you thinking Sting should get himself a new PR person, because the CD-ROM gives him the chance to be intelligent, thoughtful and even a tad anarchic.

Philips has obviously sunk a lot of money into *All This Time*. It is beautifully produced, placing you in an eerie, medieval landscape, strewn with buildings inside which all sorts of odd occurrences take place. Carefully concealed about the island are a number of Tarot cards - collect all these and Sting himself will tell your fortune. While you stumble around looking for them, you might find Sting talking about death, or giving you a flash of his digitised nether regions while he performs his yoga exercises. Or you can construct a rather trip-happy Sting tune of your own, by

clicking on two blue turtles to launch looped MIDI files. Or you can listen to Sting telling you stories about how spaced-out Bob Dylan is. Or watch the man himself in a Vic and Bob sketch which is particularly funny, even for those two.

Of all the music CD-ROMs produced by major label acts, this is, without even a shadow of a doubt, the best. Which, for some trendy Sting haters, maybe a



revelation hard to cope with. *All This Time* still conforms to the music CD-ROM format pioneered so lamely by the likes of Peter Gabriel, Prince, The Rolling Stones and The Cranberries. But, if Sting's public image doesn't irritate you too much, you might want to check out *All This Time*. Admittedly, when *Edge* received *All This Time*, the notion of reviewing a CD-ROM based upon Sting did not particularly inspire. But, thankfully, some things in this multimedia world steer clear of the cliché. This is one of them.

Publisher Philips
Platform Windows 95
Price TBA



Enter this, and you are treated to digitised video footage showing Manchester's top DJs giving their pet DJing tips - some useful, some fatuous. After this introduction, you are invited to pick one of two record boxes, and are taken to a virtual DJ booth with graphical representations of a pair of Technics decks flanking a cross-fader.

At last, you might think, someone has finally realised how easy it would be to create an accurate, working virtual replica of a DJ's booth. But alas, you soon realise that all you can do is place records on your decks, set them playing from the beginning and crudely mix between them. You can't cue tracks to particular points or adjust their speed, so mixing is out of the question, let alone teaching yourself tricks like scratching or spin-

backs. Hopefully somebody will seize this excellent idea and execute it in a less shamelessly pathetic manner. Until then, *Sounds of The City*, however poor, will have to suffice. *Sounds of The City* can be found on the internet at <http://www.sotc.com>.

Publisher Sounds of The City
Price TBA
Platform Windows 3.1, Windows 95, Mac

Continued

Junglism

Junglism claims to be 'the full story of the jungle music phenomena' communicated through 'an exciting multimedia environment'. In reality, it is an exploitative and poorly put together multimedia mish mash.

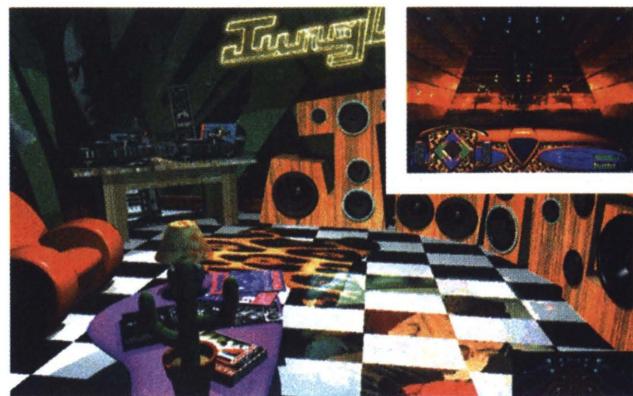
Divided into six interactive rooms (hidden in and around a blurry cityscape), all turn out to be variations on the same theme. In The Record Shop you can listen to jungle music, look through flyers and magazines, and read artist biogs (by clicking on the relevant icons). In the Living Room you can, yes, look through flyers, read

magazine articles and listen to jungle music. Admittedly, the flyers are beautifully designed, but is it really worth paying £25 to look at them?

The best bits are the Space Temple and Club, where you can mess about with the music and add breakbeats and samples. This really should have been the centrepiece of the CD - it's the only vaguely interactive element.

CD Vision's intention is earnest and worthwhile, but there's so little, and it's so appallingly put together. Enthusiasm is never an excuse for amateurism. Certainly, if jungle was as bad as this, no-one would listen to it. **E**

Producer: CD Vision
Price: £24.99
Release: Out now



In the living room, players can read flyers and magazine articles or just try to stay awake. The jungle mobile (inset) is equally soporific

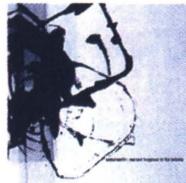
MUSIC**Underworld****Second Toughest in the Infants**

Junior Boys Own

Three years after their first album, *Dubnobasswithmyheadman*, Underworld have lost neither their penchant for great album titles or their ability to create distinctive music.

Second Toughest is another foray into the group's smoky den of dub sleaze and quasi-industrial techno. The distinctive lyrics, guitar samples and lazy beats of *Dubnobass...* are back, but here the original's weird indie dance leanings have been removed.

Although not quite the subversive, heterogeneous masterpiece that was *Dubnobass...*, *Second Toughest* is still a haunting trip. Dub noir. **E**

**Man With No Name****Moment of Truth**

Concept in Dance

Moment of Truth is no sample-laden exercise for techno trainspotters, but a rather polished slice of Goa or psychedelic trance - a strain of techno that, in a roundabout way, has its roots embedded in the sun-soaked sand off the west coast of India. Fast, multi-layered synths are littered with the kind of melodies and aural hooks that used to pulse from the C64 in its heyday. That's not to say this doesn't kick hard - in places it positively hammers, and occasionally - as with spirited club favourite, Floor Essence - with enough verve to floor an elephant. Happy hippy techno for game music heads. **E**

**Various****Tekken: Windermere, the jungle mixes**

JVC

JVC has persuaded British jungle superstars to remix the *Tekken* soundtrack - although you'd be hard pushed to recognise any strain of the original.

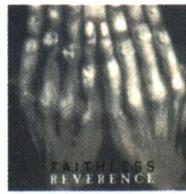
Lemon D gets the ball rolling with a rather Eastern-tinged, synth-led affair perched on top of an extremely meaty, yet mellow, bass-line. Lemon D and Dillinja don't quite hit top form with variations on a minimal drum-and-bass theme, although Lemon D's dreamier effort just pips Dillinja's dark, string-laden reworking. Best are Dubtronix's dub and techno-influenced mixes, underpinned by nice clean breakbeats which never threaten to get frenetic. **E**

**Faithless****Reverence**

Cheeky Records

Beginning with a lumbering rap and ending with the near unconscious ambience of *Drifting Away*, *Reverence* is one of those rare albums that really deserves the overused tag 'eclectic'.

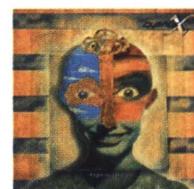
Created by DJs Rollo and Sister Bliss, along with various other collaborators, *Reverence* sways effortlessly between musical styles, taking in anthemic house, techno and bluesy ballads along the way. Everything works perfectly, with divergent sounds merging together rather than grating uncooperatively. In all, *Reverence* will make a marvellous aural accompaniment to the impending British summer. **E**

**Cygnus X****Hypermetrical**

Eye-Q

The rise of trance has led to a plethora of new albums from artists who fuel the lighter side of techno. This admirable debut release from electronic maestro, Matthias Hoffman, is a welcome excursion into the stonier ground of Germanic trance.

Aside from the occasional groovy breakbeats and ethnic warbling, *Hypermetrical* relies on an insistent, synth-laden formula enriched with perky, fluttering melodies. Only the finale, the hypnotically-orchestrated Orange Theme, tones down what is essentially a full-on, metallic trance workout from a musician that clearly doesn't like to fart around. **E**

**System Seven****Power of Seven**

Butterfly Recordings

For their fourth album as System 7, ex-prog rocker Steve Hillage and partner Miquette Giraudy have come up with yet another trippy assortment of ambient meanderings.

The first six tracks remain in Orb country, with hypnotic synth rambling over chugging old-school beats. Davy Jones' Locker introduces a rumbling dub bass to liven things up, but *Power of Seven* doesn't really move until the three tracks which make up the album's 'Osmosis Suite'.

As chill-out music, *Power of Seven* works well - but if there's a new direction for ambient to go in, System 7 aren't in a rush to find it. **E**



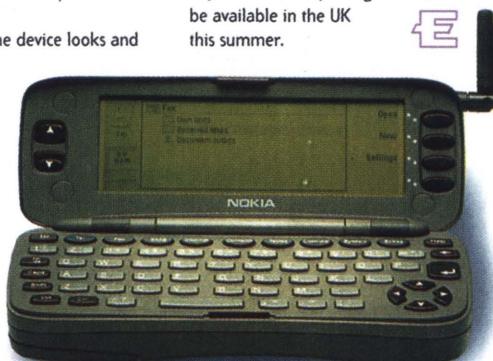
Nokia 9000

Revealed for the first time at the CeBit show in Germany two months ago (see E32), the Nokia 9000 is an 'integrated digital communications tool' which includes mobile phone, fax, email, internet and address book facilities. It also happens to fit in the palm of your hand.

When folded, the device looks and operates like a standard mobile phone. However, when opened, the fax, email, internet and address book functions can all be operated via the keyboard and a single user interface. To send a fax, for example, the user

presses the fax application button, writes a note and selects the recipient from the address book.

While the case is open the phone can still be used - hands free - meaning you can type and talk at the same time. The Nokia 9000 can also be connected to a PC and is designed to operate for an average working day on one battery charge. It will be available in the UK this summer.



Nokia 9000 Communicator £1,500 Tel 0171 436 4060



Sony YPPY

YPPY is a limited range of ten customised Walkmans fitted with materials such as lace, aluminium, fasteners and buckles, to give them all a characteristic 'designer' look.

But aren't Walkmans supposed to be inconspicuous?



Sony YPPY from £50 to 80 Tel 0181 784 1144

competition



Sony MZ-R3 MD Walkman £400 Telephone 0171 784 1144



Win a Sony MiniDisc player

Introduced by Sony in 1992, and intended to rival the cassette, the MiniDisc comes in two forms - premastered and recordable. The latter uses magneto-optical technology and can record from CD with no loss of quality. Furthermore, you can re-record on the same disc a million times without deterioration.

Apart from the MiniDisc's obvious advantage in terms of sound quality and size, Sony's top-of-the-range recording player, the MZ-R3, has ten seconds of shock-resistant memory plus a full suite of editing features including the ability to add, delete and even change the order of tracks.

In conjunction with Sony, Edge has one MZ-R3 player (worth £400) to give away. To stand a chance of winning it, simply answer the following question on a postcard or envelope (along with your name and address) and post it to **SONY MINIDISC COMPETITION, Edge Magazine, 30 Monmouth Street, Bath BA1 2BW**. Competition closes June 9, 1998.

Q. In what year was the Sony Walkman introduced to the world?

Note to those sending multiple entries: Edge bins them

gadgets and gear



Wipeout gear

Created by Chelsea fashion emporium, Million Dollar, and featuring Designers Republic motifs, the *Wipeout* clothing offered in E31's competition provoked a massive reader response.

For those not lucky enough to win, but still interested in owning some, the whole range of *Wipeout* garb is available from Million Dollar's own shop in Chelsea as well as M.A.S.H in Oxford Street and Flip in Soho.

Million Dollar have also come up with two *Tekken* T-shirts and are currently working on a range of *Pac-Man* gear.



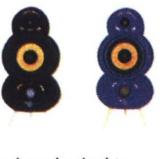
Wipeout gear from £11.99 to £39.99 Tel 0171 376 7688

Minipod speakers

Unselfconsciously billed as a 'cyber organic experience' by designers Blue Room, the minipod speaker is the newest installation in the company's Alien Hardware Collection (which also includes the House and Techno Pod speakers).

Available in white, black, red or blue, the minipod is rather amorphous in design, inspired perhaps by the biotechnology of HR Geiger or the organic explorations of William Latham.

Either way, the speakers are a sleek contrast to the usual shoe box efforts and, with B&W Speakers taking care of the acoustic engineering, they



have a range and sound quality to match their aesthetic attributes. Blue Room also has its own record label.

Blue Room Released, which caters for the growing following behind psychedelic trance. Published artists include Total Eclipse (France), Etnica (Italy) and Danish trance maestros Kox Box.



Minipod speakers £400 Tel 01903 524801

Super Mario 64

Nintendo's premiere entry into the 'next generation' of videogaming readies itself to destroy the 32bit opposition

SM64 is easily the best example of how, when used cleverly, 3D technology can open up exciting new directions for gameplay



The N64's hardware effects smooth out any pixelation, enhancing the cartoon-feel. As do neat touches such as Mario opening a lock (inset)

Format: **Nintendo 64**
 Publisher: **Nintendo**
 Developer: **In-house**
 Release date: **June 23**
 Origin: **Japan**

Just as the Electronic Entertainment Expo yielded the first hard evidence of a catalogue of Nintendo 64 software, more than anything it provided conclusive proof, if any were needed, that Nintendo's internal Japanese division makes the world's best videogames.

Almost by default, *Super Mario 64* became the game to illustrate this better than any other. Attending a press conference on the day preceding the show, **Edge** witnessed a candid and forthright demonstration of the work that has gone into creating what NCL chairman **Hiroshi Yamauchi** cited last November would be the 'best videogame ever created'. In direct

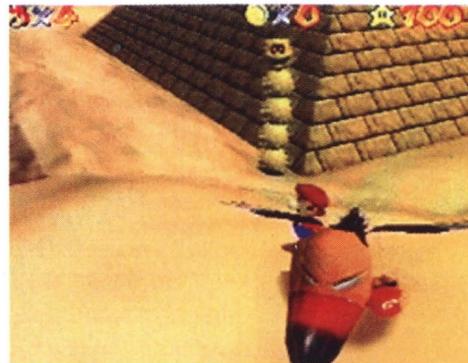


By jumping into this foreboding pool, Mario is transported to a new area of the game. The lighting on the rippling water is breathtaking

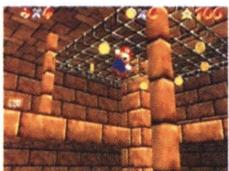
contrast to previous NOA conferences, Nintendo hooked up a console to a giant videowall and left it to NOA employees from its internal 'treehouse' development division to take the game through its paces. Needless to say, jaws dropped, pupils enlarged and gasps of amazement issued from the crowd.

Succinctly termed 'a delightful videogame' by NOA chairman **Howard Lincoln**, the completed *Super Mario 64* is an astonishing achievement on many levels. Most significantly, it is easily the

A comprehensive demonstration of *Super Mario 64* at E3 2006 leaves attendees suitably blown away by its control system, the scale of its environments, its camera controls, and attention to detail. What will Shigeru Miyamoto and his team possibly come up with for the sequel, which could be here by late 1998?



Notice how the distant pyramids in the desert do not have to be depth cued. Here the sands slide away beneath Mario's feet. A swooping vulture steals Mario's cap (right)



The versatility of the 3D engine can be seen in the vast array of events that fill the game world

best example of how, when used intelligently, 3D technology can open up exciting new directions for gameplay. This is no 2D game given a copious lick of texture-mapped paint, it is a fully fledged excursion into a truly immersive 3D world. Considering Nintendo has built its business working solely in two dimensions it represents perhaps its single greatest innovation.

As well as furnishing *SM64* with all the charisma, charm and immediate appeal of Mario games past, Nintendo has also managed to ensure fresh gameplay is at the core of its next generation assault. Utilising its new analogue controller, Mario is now more manageable than ever before. Nudging the central joystick slightly forward makes him tiptoe, while pushing it further still will make him walk and then run. This negates the holding down of a button for speeding Mario up as in previous games, making the control mechanism wonderfully intuitive and fluid. While the nuts and bolts of the gameplay remain true to the Mario lineage, the astounding execution makes this feel genuinely new and exciting.

For a videogames company with an almost anti-graphics philosophy, Nintendo has crafted *Super Mario 64* into a seriously beautiful game. No doubt

with a bitter-sweet taste in its mouth from its US launch of the SNES five years ago (when Sega placed *Sonic the Hedgehog* side by side with the distinctly functional-looking *Super Mario World*), Nintendo has taken the time to make sure that its 64bit launch game eclipses the competition. Judged on almost every level, there's a world of difference between this and Sega's and Sony's own 3D platform contenders, *Nights* and *Crash Bandicoot*.

SM64's most immediate visual strengths are in the quality of its texture-mapping and colour resolution. Running at well over 30fps, the N64's screen provides a hi-res-like, despite the game running in the machine's lowest screen resolution of 256x224. The texturing itself looks far more impressive than when shown at the Shoshinkai show last November (some textures, such as those on the walls, have been completely redrawn) while the sheer scale of some locations is staggering. Nintendo has used large polygons (without any of the distortion seen on the PlayStation and Saturn) and the machine's 'load management' ability has been used to create a long and wide depth of field. Hence, many of the sections in *SM64* stretch far into the distance creating the illusion of large, unabridged

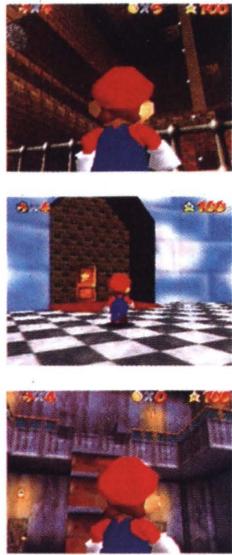
Nintendo has crafted *Super Mario* into a seriously beautiful game – the graphics simply eclipse the competition

Continued next page



Mario's adversaries of old make full three-dimensional appearances in *Super Mario 64*'s world. Big Boo fades in and out of view effectively as he prepares an attack (above left). A tethered Chompy bares its teeth (above right) as Mario traverses the game's eye-popping outdoor sections

Continued



SM64's in-game camera is adjustable to provide the most convenient view of the action

environments. This is the key graphical advantage that both *SM64* and *PilotWings* (see page 32) have over all PlayStation and Saturn software so far.

To illustrate this further, in one scene Mario enters an Egyptian pyramid to be faced with an enormous room (similar to those of *Quake*, although far larger) complete with high, inaccessible platforms. Rotating the camera from behind Mario's head allows the player to survey the vastness of the room while the N64's MIP-mapping and anti-aliasing allows distant objects to appear clear and detailed – in this case, a revolving stone wheel trundling along a high platform. Another section sees Mario running vertically down an enormous ravine as the camera pans far out to reveal its full depth with no obtrusive polygon build-up, just the entire scene. It's thoroughly stunning to watch. Of course, it's extremely unlikely that *SM64* uses all of the machine's advanced hardware features (certain effects engender a performance hit) but the sheer scale of the geometry being thrown around provides a scintillating glimpse of the power of the machine.

After the press conference **Shigeru Miyamoto** demonstrated some of the game's more curious elements. One brilliant section sees Mario agreeing to enter a race around the castle with a giant Koopa, only to succumb to some blatant cheating in the form of taking short-cuts. Koopa doesn't take such efforts lightly, even though he has his own routes for getting ahead. Miyamoto also showed the flexibility of *Super Mario 64*'s in-game camera and how the player can take full control to get a different perspective on the action. Unlike most games of this type, however, the camera has been programmed with an intelligence and respect for the player that has not been seen before (in the game the camera is held by Lapitu and he can be controlled with the N64 joystick's yellow buttons).

It was reassuring to learn that this promises to be the biggest Mario game yet, boasting up to 50 hours of gameplay (although theoretically it could be conquered in around one tenth of that time). A vast size indeed.

Of course the price of such size is an enormous memory requirement, and at 96 megabits (12 megabytes) *Super Mario 64* is already encroaching on the territory that SNK plodded through with its cartridge-based Neo-Geo system. As such, *Super Mario 64* is possible proof that genuinely outstanding N64 games will be difficult to pack onto the more modest 32Mbit and 64Mbit cartridges that Nintendo is currently touting to its third party licensees, and it's highly unlikely that any third party will be able to



Without the need for motion capturing, the charisma of Mario exudes through the 3D engine. Skidding over ice causes puffs of smoke (right)

match Nintendo's \$70 price tag for such a large cartridge.

Sonically, *SM64* is hardly going to cause the same level of excitement as the rest of the game, but as with most Nintendo soundtracks, this one is exceptionally well suited. Supplementing the usual plinky-plonk tunes with more ambient orchestrations, the soundtracks may fall short of the quality included on most CD games, but due to their immediacy, variety and suitability to individual environments, they still manage to be more effective than most in-game tunes. Despite the reluctance of most musicians to program for internal sound chips (and in the Nintendo 64's case the number of channels apparently places a burden upon the CPU), chip-generated music, for its technical shortcomings, can still enhance the atmosphere of a game greatly.

Immediately the talking point of E3, *Super Mario 64* has the potential to become a landmark in videogaming. Along with NCL stablemate, *PilotWings 64*, it has managed to surpass all expectations, using state-of-the-art 3D technology to amplify the essential charisma of Mario. From the comical sight of Mario running around in tight circles, arms extended, to the sheer beauty on display in some sections, it's a game that cannot possibly fail to bring a smile to gamers' faces.



Mario must try and traverse this spinning log (inset). If he falls off, however, rather than simply dying, he lands in a new section (main)

An interview with Shigeru Miyamoto



ollowing its main E3 press conference, Nintendo invited a select band of journalists to a private demonstration of *Super Mario 64*, and an audience with **Shigeru Miyamoto**. *Edge* was, of course, in attendance.

Q Although you've worked on *Super Mario 64* for a long time, you've also had to work on many other titles to ensure the system has a good launch lineup. How have you been able to manage the task of working on so many games at once?

SM I had a lot of trouble concentrating my efforts on *Mario 64* working as the game's director. Ever since I completed the *Zelda* game, my role at Nintendo has been more of a producer, supervising the different works in development. But when it comes to *Mario 64* I was actually the main director of the game, so if I stopped at some point all other work stopped simultaneously. This was not an easy task and when I come to think about future products, I believe I'll have to devote myself to a producing role mainly, rather than directing.

Q What were the biggest design problems converting *Mario* from 2D to 3D?

SM I don't want to criticise other game developers, but I believe that, other than in fighting and racing games, nobody is really meeting a 3D criteria. Many games are presented in 3D, but are, in fact, simply 2D experiences incorporating a lot of tricks to fool people into believing they are playing a 3D game.

I think one of the biggest difficulties in creating 3D is the viewpoint. Looking at the way the camera follows you in *Super Mario 64*, you would think it would be easier, but in fact, when you start a 3D game from the very beginning it's easy to get confused. For example, if Mario is in a maze, you can change the viewpoint to play the game from Mario's point of view, but if the camera is behind Mario and you are walking through a narrow passageway in a maze and you want to look in other directions, you have to realise the camera would hit the wall. It is frustrating for the player to realise they cannot change the viewpoint freely, even though 3D games must incorporate realistic camera movement – this kind of camera work is problematic when you start creating 3D games.

Q With *Mario* nearly finished, on what game will you be next concentrating your efforts?

SM I couldn't put everything into *Super Mario 64* that I really wanted, so we've decided to continue working towards a sequel which will take about a year-and-a-half at least – so please don't write many things about that [laughter]. Of course, *Zelda* is one of the things I would like to concentrate on, too, but before that we have *StarFox*, *Mario Kart*, and more immediately I would like to concentrate upon *WaveRace*.

Q How do you think *Super Mario 64* compares to

previous *Mario* games? Is this its best one yet?

SM Personally, I'm satisfied simply because we have created something very new and unique, non-existent in the past. Concerning the game itself, I'll have to wait for the actual remarks to be made by the consumers. Talking about *Super Mario 64*, I believe we have just utilised only 60% of the whole capacity of the Silicon Graphics *Nintendo 64* technology.

Q Now everything is moving in 3D on the *Nintendo 64*, will there be 2D games on the *Nintendo 64* later on?

SM Yes, in fact, even though this is a 3D system, if you are careful enough you can make a 2D game – I'm actually working on a *Yoshi* title.

Q Since *Mario 64* is a cartridge game, was the lack of space a limitation?

SM To be honest, after working on *Super Mario 64* on cartridge, I realised the game would never have been possible on a CD-ROM system. I'm not speaking ill of CD-ROM at all, but this is my genuine sentiment.

Q Will the sequel use the forthcoming optical-based 64DD? And when you're talking about the speed advantages of cartridges, how will you cope with the slower handling of data

by which the 64DD will be restricted?

SM We have not yet decided what format we will use for *Super Mario 64*'s sequel, but if we are going to utilise the 64DD system for this, yes, we will have to work on some of the problems on the transfer speed. Basically, however, the speed is decided not by the actual disk itself but by the RAM that is incorporated onto the hardware, and if we look at the *Nintendo 64* hardware

After working on *Super Mario 64* on cartridge, I realised the game would never have been possible on a CD-ROM system

system itself, it has an expansion memory slot, meaning most of the problems could be solved.

However, I still have to admit that the 64DD would not be as fast as the cartridge-based system and even though we understand the 64DD's loading time will be much shorter than other CD-ROM systems, still it cannot compete with cartridges when it comes to the *Mario* style of game. I think, however, *Zelda* would be good for the 64DD, considering the appropriate loading time.

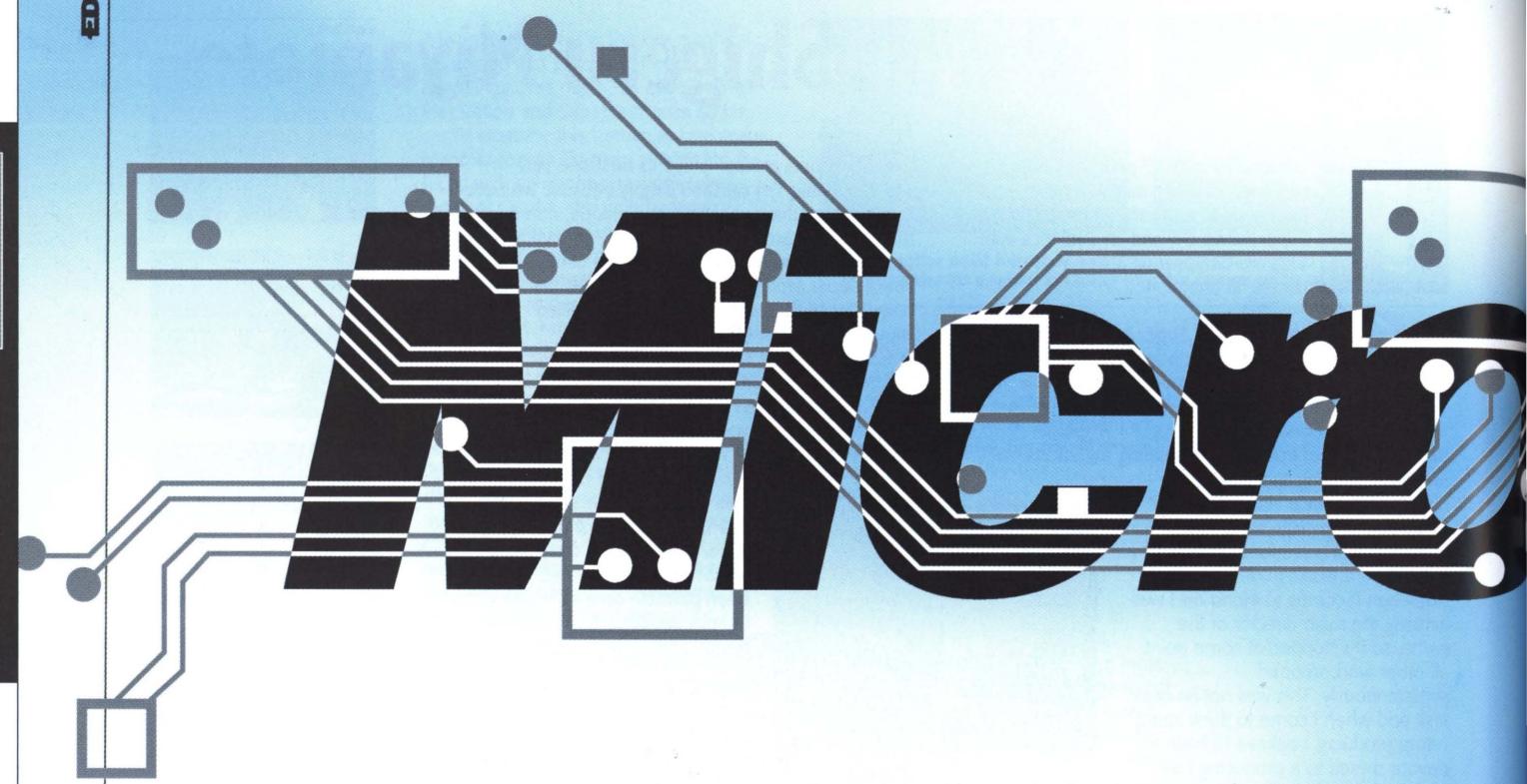
Q Time magazine recently called you the Spielberg of videogames. What would you have done if you hadn't worked for Nintendo?

SM I chose to work for Nintendo simply because I thought Nintendo would be the kind of company to give me the opportunity to surprise people. More specifically, when I first saw the Rubik's Cube I was kind of jealous because that was the sort of thing I would have liked to have invented myself.





Microsoft has kept gaming activities at the side of its concerns since its formation in 1975, but with initiatives such as DirectX, all that is changing. Is this the beginning of a dominant new force in electronic entertainment? Or will the software giant's failure to be 'streamlined for the job' be its undoing?



With a **reputation for winning** - some would say **at any cost** - Bill Gates' **Microsoft** is the **biggest consumer software company in the world**. Now this **giant corporate predator** has turned a **hungry eye** to the game industry. Should **gamers tremble or rejoice**, asks **Edge**

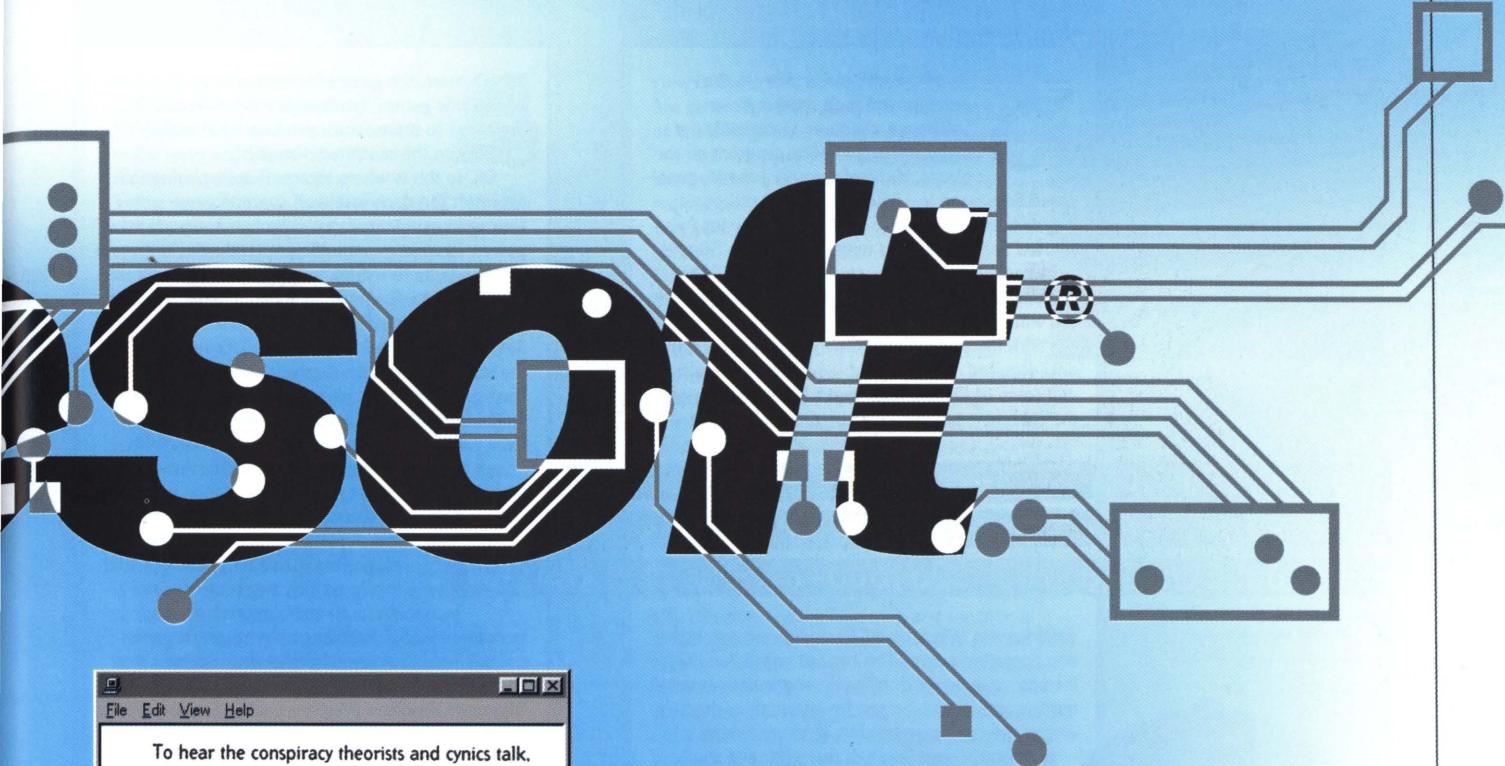
icrosoft is corporate evil incarnate: a predatory, domineering software giant known for strong-arm tactics in the distribution channels, and late, slow, feature-laden (but otherwise derivative) software.

It is a company whose Windows operating system - its flagship product - seems almost purposefully designed to waste processor cycles and RAM. Yet it thrives in a dog-eat-dog market where brute business muscle and a strong stomach for screwing competitors are almost as important to success as superior products.

Such is the way many on the Internet and in the computer and popular press would have you think of Bill Gates' wildly successful giant corporation.

The game industry had better beware. How can such a brawler of a company succeed in the fast-moving game market without resorting to the same strong-arm tactics that have sparked recent numerous anti-trust investigations? Will Microsoft use its muscle in the marketing and distribution departments to ensure that conservative (read poor) Microsoft games receive valuable shelf space? Will the capricious Win 95 be forced down developers' throats? Will the PC gaming world collapse, crippled by the weight of a slow, uninspired games library, dragged to its knees by a need to run through a shoddy, buggy interface?

1 object(s) selected



To hear the conspiracy theorists and cynics talk, one would expect a visit to the Microsoft HQ in Bellevue, Washington, to resemble a journey into the very pits of Hades itself.

Time for a reality check. When one steps out of the emotional shoes of a nervous PC enthusiast and begins to look rationally at the relationship between Microsoft and gaming, a very different picture emerges. Most of the fears about Microsoft come not from any actual insidious plots being hatched at the company's corporate headquarters, but rather from a lack of knowledge about Microsoft's real plans - and capabilities. When examined in detail, Microsoft's gaming itinerary looks less like the ploys of some evil corporate entity and more like what it is - a comprehensive strategy from a huge company that wants to be sure it has a presence in every possible area of profitability. Monopolies aren't as easy to maintain as they used to be. Occasionally it takes some hard work to keep stockholders in the manner in which they have no doubt become accustomed.

That's not to say Microsoft isn't an aggressive organisation with world domination on its mind. Indeed, it could well be. But even if Microsoft wanted to monopolise the entertainment software industry, it's far from clear that it could. Despite what appears to be the company's best efforts, Microsoft has not yet managed to dominate the PC



1 object(s) selected

business software world (although its success in another area - PR dominance of the popular press - may keep a casual observer from noting that). It has almost no presence in desktop publishing, and in some areas it has especially targeted, like personal finance. It has lost out (in this case to Intuit's *Quicken*).

More importantly, Microsoft may find its unique skill base and experience is unsuited to a full-scale assault on the game world. Unlike the business software market, which to a large degree is iterative (improvements are made to the original program with each successive version) the game software market is dynamic and unpredictable. A game can grow from being an idea, to a paper-napkin sketch, to the proverbial 'next big thing' in a little more than a year, with maybe a team of just ten or less working on it. A business application 'hit', such as *Microsoft Word*, typically requires thousands of work-years, multiple versions, and many years of market penetration before it achieves dominance. Sure, the rewards may be greater. But the fact remains that it's a different discipline.

There is also a great deal more elasticity of demand for games than for business software. Most people don't need two word processors, but how many different one-on-one fighting games do you own?

So it is doubtful that Microsoft could leverage anywhere near its full muscle in the gaming sector - it just isn't streamlined for the job. And what is certain is that even a company as enormous as Microsoft couldn't release enough quality software to keep users from looking elsewhere for titles. (Even if it could, all it would take is one slip before its leadership position was lost. Look what happened to EA, the once undisputed champion of sports games). The only company to ever come close to a stranglehold on a game market was Atari, and everyone is familiar with the conclusion of that tale.

So what is Microsoft actually up to, and how will it approach the industry? Its game strategy is three-tiered: in ascending order of importance they are development tools, consumer software, and promoting *Windows 95* and *Windows NT* as game platforms.



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With a \$10,000 high-end PC system and SoftImage, developers can now do what previously required \$20,000-plus SGI machines



Microsoft's console style controller looks good, is digital and inexpensive, and feels comfortable to hold

SoftImage to Windows NT, its multiprocessor, high-end operating system. This has not only helped to increase acceptance of NT in the workstation market, but has also staked a claim for Microsoft in the high-end of the computer graphics industry, aiming directly at Silicon Graphics' huge share of the content development tools market.

It's an easy sell for Microsoft to promote SoftImage to game developers. With a \$10,000 high-end PC system and SoftImage, they can now do what previously required \$20,000-plus SGI machines. NT platforms can now also be used as 'render farms' for SGI machines running SoftImage. The results: SGI has lowered the prices of its lower-end systems, and there is a trend afoot in the development industry toward using the more inexpensive PC-based systems. Blue Sky, developers of VectorMan and a SoftImage beta test site, still uses the four SGIs Sega bought it for VectorMan, but new hardware is exclusively NT based. And the savings have enabled the company to hire more artists. Microsoft reveals that more than 50% of SoftImage's revenues come from the game market.

Second, Microsoft is publishing games. This is nothing new: Microsoft has been publishing games since the days of Windows 3.0, and of course, there has almost always been Flight Simulator (Microsoft's perennial, sleeper hit). What's new is that the game division has gone from a microscopic group (including one person working part-time on *Golf* and part-time on *Word*) in 1992, to a fully fledged division with 80-plus employees.



What's more, the games themselves have gone from being 'little games' (such as *Windows Tetris* and *Solitaire*) to more robust products such as *Fury*.

Back to the conspiracy theorists...

OK, so this is where Microsoft quits playing fair. Microsoft can dominate shelf space in game stores - forcing its competitors out - through its distribution power. Its strategy, according to insiders, is to go to a store and say, 'We think you can sell Y copies of title Z.' If the store disagrees, well, they get nothing, and miss out on all profits from selling Microsoft's product. Result? Microsoft generally sells-in Y copies of Z - and the stores then make sure they sell them. It was this strategy that enabled Microsoft to get about 7,000,000 Win 95 upgrade kits in stores last

autumn, even though it only sold through about a third of them by the winter holiday season...

Certainly, Microsoft has none of the distribution headaches that plague many smaller publishers, and this fact (plus the recognised Microsoft brand name) ensures

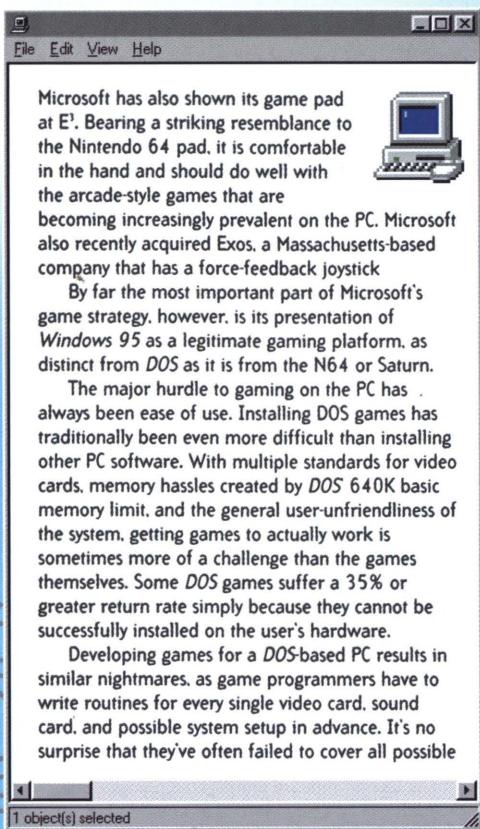
impulse buyers alone make most Microsoft games unqualified hits. According to its own figures, Microsoft could release a generic game box that says 'Microsoft Windows 95 game enclosed' and expect to sell about 400,000 units - a figure to make the average PC software publisher drool with envy.

Still, since 1994 the number of PC game products in the market has almost doubled, so it is unlikely that Microsoft could continue to count on huge sales with volume 29 of the *Windows Entertainment Pack*. In a notion that may be almost inconceivable to most Edge readers, Microsoft has chosen to ignore hardcore gamers and focus instead on what it calls the 'casual' gamer, someone who buys only five to seven titles per year. That strategy focuses on the reliability of the Microsoft brand name, as well as solid but not necessarily ground-breaking games. It will keep the company on good footing (look how well it's worked for LucasArts). But it doesn't seem likely to lead to some massive takeover of the industry.

Looking forward into 1997 and beyond, Microsoft plans to continue to target the casual gamer, as well as releasing some titles that should get the attention of hardcore gamers. The most remarkable thing about Microsoft's game publishing strategy, though, is its breadth. Rather than concentrating solely on one genre, the company has products coming in the shape of sims, action, sports, strategy, on-rails shoot 'em ups, god games, and more. (See page 62 for previews of some of these.)

The other aspect of its gaming consumer products line is hardware, specifically joysticks and joypads. Selling game hardware is a new business for Microsoft, and one that seems to be introduced not so much for the long-term strategic benefit as much as for a quick (albeit low) margin of profit. Its SideWinder joystick, which uses patented optical technology to give the benefits of both an analogue and digital stick, has been well received, and





Microsoft has also shown its game pad at E3. Bearing a striking resemblance to the Nintendo 64 pad, it is comfortable in the hand and should do well with the arcade-style games that are becoming increasingly prevalent on the PC. Microsoft also recently acquired Exos, a Massachusetts-based company that has a force-feedback joystick.

By far the most important part of Microsoft's game strategy, however, is its presentation of Windows 95 as a legitimate gaming platform, as distinct from DOS as it is from the N64 or Saturn.

The major hurdle to gaming on the PC has always been ease of use. Installing DOS games has traditionally been even more difficult than installing other PC software. With multiple standards for video cards, memory hassles created by DOS 640K basic memory limit, and the general user-unfriendliness of the system, getting games to actually work is sometimes more of a challenge than the games themselves. Some DOS games suffer a 35% or greater return rate simply because they cannot be successfully installed on the user's hardware.

Developing games for a DOS-based PC results in similar nightmares, as game programmers have to write routines for every single video card, sound card, and possible system setup in advance. It's no surprise that they've often failed to cover all possible



combinations. And it's similarly unsurprising that this has generally left PC games the strict domain of hardcore gamers and computer enthusiasts.

With Windows 95, Microsoft seeks to change all this. Not only does Windows 95 make installation easier, it also makes game development easier, thanks to a series of developer APIs (Application Programming Interfaces) and libraries known as the Game SDK (Software Development Kit). To get the Game SDK, developers must simply join the Microsoft Developers' Network, which costs around \$500 per year - about the cost of goods of the CDs and manuals the average developer receives in that time. Microsoft then supplies these software libraries to game developers, making the process of developing a game designed to work within Windows 95 a whole lot easier. The major component of the SDK is the series of APIs known as DirectX (see below).

The main complaint about developing for Windows is that, as a program that puts a layer of software between the hardware and the user, it simply cannot provide the performance needed for a high-speed game. To get a game to run fast under Windows, developers generally have to break all sorts of rules - resulting in the same basic headaches that occur under DOS. DirectX, by providing a set of standard APIs, fixes some of this. Microsoft has 'broken the rules' of standard Windows development to gain speed (such as DirectDraw's ability to write straight to VRAM in a window). And as long as developers stick to the 'broken rules' Microsoft has developed for the DirectX APIs (written in extremely



Some of the graphical capabilities of Microsoft's Softimage. Originally SGI-only, it now runs on Win NT

Continued next page

Direct X appeal

The DirectX APIs provide a software buffer between a PC's hardware (including all add-ons, such as joysticks, sound cards, and video cards) and the software application (say, a game). By writing to the API, instead of directly to the hardware, developers can be sure that their software will function on all PCs running Windows 95. There are five elements of the DirectX API:

- 1) *DirectInput* provides support for digital as well as analogue joysticks.
- 2) *DirectPlay* enables multiplayer gaming by providing built-in support for LANs (Local Area Networks) as well as modem play, using Windows 95's networking infrastructure.
- 3) *DirectSound* provides transparent, device-independent access to sound cards and offloads sound processing duties (mixing, say) directly to sound hardware.
- 4) *DirectDraw* enables writing directly to VRAM inside a window, and supports graphics accelerators where present.
- 5) The *Direct3D* API (scheduled to ship this April as part of *DirectX II*) has three main components: a high-level retained mode, which contains the Reality Lab 3D engine; a low-level immediate mode for developers who prefer to use their own 3D engines; and a hardware abstraction and emulation layer that interfaces directly with the hardware. The emulation layer will enable CPUs to emulate the features of 3D acceleration cards if they are not present. *Direct3D* will also support z-buffering, Gouraud shading, full-light sourcing, specular highlighting, tri-linear mip-mapping, and depth cueing.

3rd Party Apps

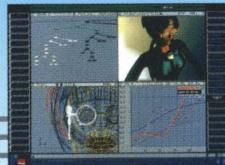
DirectPlay
DirectSound
DirectDraw
retained
immediate
future expansion

HW abstraction/emulation

Hardware

EDGE

Continued



Many prerendered intros are now manufactured within Softimage, from wires to rendered models

low-level code), everything should run fine. By writing to the *DirectX* specifications, developers can be sure that their software will run on any PC running *Windows 95*. Microsoft takes care of the irritating task of developing drivers for all the different types of hardware that the game might be played on, not to mention doing extensive compatibility testing. The time and effort saved by being able to write to one spec also decreases development time and cost.

More importantly than just making it easier to develop and play games on a PC, the *DirectX* APIs make practical for the first time something that has always been possible on PCs - Plug 'n' Play, or widespread support for a variety of novel hardware. This is the single most exciting aspect of *Windows 95* as a gaming platform, and it is not an understatement to say that this could be the single-most important advance in PC gaming technology of the last decade.

Until now, if a hardware developer created or implemented a new technology, like 2D or 3D graphics acceleration, a new input device, a new sound card, or anything that took the PC past the stock 'vanilla' stage, they would find they had created an orphan technology, at least as far as game developers were concerned. Until the device gained enough acceptance in the marketplace, few companies would go through the trouble of writing the drivers to support it. Without the games, few upgrades were sold, and few new technologies were adopted. For example, despite the fact that practically every graphics card sold since the introduction of the 486 has had 2D graphics acceleration, few PC games have ever taken advantage of it.

Microsoft could release a generic game that says 'Win 95 game enclosed' and it would sell 400,000

Microsoft's basketball title, *NBA Full Court Press*. Crowds are not in place and gameplay still needs some work

The only real standard to emerge on the PC since the days of Creative Labs' Sound Blaster card was the pathetic MPC (Multimedia PC), a *Windows*-based standard developed at the dawn of the multimedia age. With an MPC-compliant PC, all you could really be sure of was that your machine could run the latest and greatest encyclopaedia CD-ROM. Yawn.

Now that's all different. With Microsoft developing (or more correctly, having hardware manufacturers develop) drivers for every hardware device conceivable, developers can now blithely write to the spec and not worry about supporting various hardware elements. If additional hardware is there, *DirectX* will sense it and use it. If not, the CPU will emulate the missing hardware.

Not every developer, however, is totally thrilled with the Game SDK. 'I like to access everything,' says one. 'Now we're going to have to put our stuff into a "black box". It's kind of

disconcerting to have that control taken away from you.' It's also important to note that because *DirectX*'s features are present in software, fairly powerful machines are needed to be able to take advantage of *DirectX* in any practical way.

It's clear that with the introduction and continued support of the *DirectX* APIs (which were developed with strong input from leading PC game companies), Microsoft is making an intense effort to support *Windows 95* as a game platform. In the short term, the reason why is equally clear. Despite what people say to themselves to justify the purchase of an expensive home PC, games are the most popular home application, by far. An internal Microsoft estimate is that 40% of the time a home PC is on, it's running a game. To ensure that *Windows 95* is accepted as an OS in the home, then, there must be a game presence on it - especially considering first-time buyers of home PCs are far less likely to withstand the rigors of installing a DOS game.

The *DirectX* initiative provides technologies that Microsoft will be able to leverage in many other areas (and one of the first will be *ActiveMovie*, a new digital video standard that provides for MPEG-quality video and Internet hooks, among other things). But the real future for *DirectX* and the Game SDK will be revealed with the release of *DirectX III* in August and *DirectX IV* in November. That's when *DirectPlay 2.0* ships.

DirectPlay 1.0 provides APIs that enable easy LAN and modem play. **DirectPlay 2.0** goes one further, enabling play over the Internet and online services. Of course, despite Microsoft's best efforts, the Internet is one of the few areas where it's not the market leader. Yet. For developers, things will be much the same. They write to the multiplayer *DirectPlay 2.0* spec, much as they do now to the version 1.0 API. In *DirectPlay 2.0*, however, there are drivers for TCP/IP (Transmission Control Protocol/Internet Protocol) connections over the Net, and any that third parties (such as online services like *BT Wireplay*) may provide later. Now, multiplayer games are as easy to play online as they are over the office LAN.

On the other side of the network line are servers, also provided by Microsoft. Due for release in August is the *DirectPlay* Lobby Client software, with the release of the *DirectPlay* Lobby Server and *DirectPlay* Game Server due in November. A beta version of the Lobby server will be released in August, too.

There's nothing better than playing against another human, and technology is finally approaching the point where multiplayer online

DirectPlay away

For online play, calls to the DirectPlay API on the client PC will go through any drivers for proprietary communications networks, through the Win 95 networking and communications APIs to the hardware, and out over the Net. Gamers will 'meet' in the lobby at their service provider and play games coordinated by the game server, which works with the money server (whichever the service happens to use, DirectPlay 2.0 is designed to support anything which calls the *Client Billing API*).

Diagram illustrating the DirectPlay architecture:

- Application** interacts with **DirectPlay**.
- DirectPlay** interacts with the **DirectPlay Service Provider (Driver)**.
- The **Driver** interacts with **Windows networking/comms**.
- Windows networking/comms** interacts with **Hardware**.
- Hardware** interacts with **Network & other DirectPlay Computers**.
- Network & other DirectPlay Computers** interact with **Game server**, **Money server**, and **Lobby server**.
- Game server**, **Money server**, and **Lobby server** interact with **Gamer's PC**.

1 object(s) selected

games are a real possibility. Microsoft's strategy, providing an easy solution for both the front and back ends of future online games, will be nothing short of brilliant - if it can pull it off.

Why? For the foreseeable future most people will be using a Microsoft OS on a PC, especially when playing games. However, many analysts predict that within a few years a sub-\$500 Net-cruiser box will be a reality. Although Microsoft's own Simply Interactive PC (SiPC) initiative is aiming to cater for this emerging market, it is by no means assured victory. Why? Because the application software for these boxes may reside remotely (over the Net), and the technology for Internet apps may be provided by a company like Sun or Oracle (both of whom are keen to promote their own non-Microsoft OSs). Microsoft does, however, have an ace up its sleeve - and that is DirectPlay 2.0. By convincing PC game developers to tool up and support Microsoft software today, it ensures they will favour using it tomorrow.

What Microsoft stands to gain from promoting Windows 95 as a game platform is an increased share in the entertainment market, the consolidation

1 object(s) selected

of home users around the OS, and the development of technology that can be leveraged into other areas of the corporation. But these reasons are nothing compared to what the company stands to lose if the non-Microsoft set-top box becomes a reality.

Of course, the console-versus-PC war has raged on among gamers for years, and with a few exceptions, Windows 95 doesn't change many of the arguments. You can't play computer games on a big-screen TV, lying on the couch with a beer in your hand. On the other hand, you can't generally play online games on a console. Another advantage Microsoft and the PC has is that the PC is an open system. Anyone can develop for it, royalty free, and gaining full access to the Game SDK costs a mere \$500 per year, far less than the going rate for a PlayStation or Saturn development kit - around \$20,000. So, while the most innovative designers in the world - Suzuki, Miyamoto, and other top talents - are Japanese, and develop for consoles first, the next 'garage triumph', such as *Doom*, will certainly appear first on the PC.

Do Sega, Sony, and Nintendo view Microsoft as a threat? Maybe they should. Between 1994 and 1997, inclusive, US underwriter, Robertson, Stephens & Co, estimates that the hardware unit sales of consoles will decline by 6.5%, while home PC sales will rise 107.1%. Sources at Microsoft contend there is 'no way' 32bit sales will ever equal 16bit sales (which peaked at about 20 million for Sega and Nintendo). Both Sega and Sony have begun publishing titles for the PC, and while the average PC configuration is still too underpowered to play the likes of *VF2* as well as a console that costs a tenth as much, this fact is likely to change as 3D accelerators come down in price. Perhaps **Howard Lincoln**, NOA's president, put it best when he said, 'Do I think they [Microsoft] want to eat our lunch? Sure. Do I regard them as competitors? You bet.'

1 object(s) selected

Incorporating new Win 95 gaming technology, four new titles could place Microsoft on the gaming map

Continued

Close Combat

Format: Windows 95

Publisher: Microsoft

Developer: Atomic Games

Release: summer

Origin: US

Atomic, best known for the *V For Victory* series, looks to have truly outdone itself with this strategy game. You're in command of either the US 29th or German 352 Infantry as the US attempts to fight from Normandy just after D-Day, in this narrowly focused simulation.

What is most impressive about the game is the extremely sophisticated AI, developed with the help of a combat psychologist. Depending of their fatigue level, the pressure of enemy fire, and their raw ability, troops may respond slowly, or not at all, to your orders. Send a tired squad



to take a difficult objective and it may retreat if things become too difficult.

This feeling must truly mimic what actual battlefield commanders felt, making *Close Combat* a truly immersive strategy game.

For a game that conveys true desperation, play *Close Combat* and try getting a troop across the bridge into heavy fire with no tank support

Deadly Tide

Format: Windows 95

Publisher: Microsoft

Developer: Rainbow America

Release: autumn

Origin: US

The on-rails shoot 'em up is a well-defined genre. Still, Rainbow America (the developers of *The Hive*) has taken some steps with *Deadly Tide* to ensure it stands out from the *Rebel Assault*-clone pack.

The game features gorgeous 3D graphics, designed by Amblin Imaging Designers (responsible for *SeaQuest DSV* and *Star Trek: TNG*). Also, Redbook audio combined with a realistic 3D sound engine make the audio experience compelling as well. On the gameplay side, you can actually move your craft through a full 360°



of freedom, a greater level of control than provided by most games of this genre.

This is definitely a title aimed at the 'casual gamer', and it should be one that will satisfy them.

On-rails shoot 'em ups may not be to everyone's taste, but at least Rainbow America's *Deadly Tide* looks beautiful

Hellbender

Format: Windows 95

Publisher: Microsoft

Developer: Terminal Reality

Release: autumn

Origin: US

Hellbender, the follow up to *Fury*, should follow *Fury*'s dependable gameplay – fly above the clouds, and shoot things; swoop below the clouds, pick things off the ground, and shoot things; fly in caverns under the planet's surface, and shoot things. Animated cut scenes between the levels will advance the plot – you're in a civil war in space.

Where *Hellbender* should raise eyebrows, though, is in its complete support for Direct3D. The game will feature z-buffering, tri-linear mip-mapping, depth



cuing (fog and haze shading), realistic light-sourcing, and will run accelerated 3D beautifully with 3D cards. Though it's not certain, it hopefully will run decently without accelerators.

Of all the forthcoming Microsoft titles, none should demonstrate the PC's newfound 3D like *Hellbender*

Monster Truck Madness

Format: Windows 95

Publisher: Microsoft

Developer: Terminal Reality

Release: autumn

Origin: US

This is not your typical 3D polygonal racing game. Since when could you run over and crush cars in *Ridge Racer*, for example? But in *Monster Truck Madness*, you have entered the strange obstacle-laden universe of really big trucks.

Somewhat like *Sega Rally*, this title features extremely accurate physics, circuit and drag racing modes, four-wheel steering, six degrees of freedom, and some of the goofiest-looking vehicles known to man. (Did you know that monster trucks float, thanks to their fat tyres?) With eight-player

network support, digitised sound (from Big Foot, no less), fully rendered trucks, tracks and obstacles, – not to mention the ability to custom-configure your truck for different terrain types – *Monster Truck Madness* is certainly one to look out for. Not to mention the fact that it will be the first title to support the Jolt force feedback stick.



Realistic physics and stunning graphics give *MTM* potential

Bill Gates talks

One doesn't necessarily have to know how to beat the MegaDemon in *Doom* to run a successful game business. But it would be nice to think that a man who wields so much power over gamers at least knows his Command from his Conquer. And not for one minute should Bill Gates' power be underestimated. As the biggest consumer software company in the world, Microsoft has got serious muscles. And as its visionary leader, Gates gets to flex them.

But why has it taken Microsoft so long to notice the gaming world? And now that it has, is the \$6 billion (in annual sales) giant going to play rough, or prove itself to be a valuable addition to the gaming community? And if Nintendo's Howard Lincoln is correct in fearing Microsoft wants to 'steal his lunch', just how hungry is Bill Gates feeling?

Edge met with Bill at Microsoft's HQ in Redmond, WA, for the following interview.

Edge Given the success of Microsoft's *Flight Simulator*, and the boom of the PC game industry, why hasn't Microsoft put its full weight behind an assault on the gaming world before?

BG We've always had our hand in it to some degree. Putting one or two games in with the operating system has always been a good move, and you'll always see us do it. So we've always had a few titles, but mostly developed outside.

We saw the embarrassment of how hard it was to install games, and the conflicts between DOS games and productivity applications after we shipped Windows 3.1. And we saw it as holding back the home computer market. You really shouldn't have to have an expert friend to dig into your configuration file.

Edge So are the games Microsoft is developing primarily designed to showcase Windows 95?

BG No, they're to make money. And so you'll see a lot more titles coming out from us internally – a lot more than ever before – and game titles coming out of the joint venture with DreamWorks Interactive as well.

Edge Let's forget Windows 95, and your other businesses for a moment. What do you feel Microsoft can bring to the party as a game developer?

BG People who play games a little bit are going to look at the individual games...

Edge You think that's how Microsoft's publishing effort should be appraised?

BG Ninety percent will. From 10% of the people you can get a notion that we really know how to test software; how to distribute software; how to take a long-term view of building very rich technologies into these games. Things like games that use voice input – that's going to happen, or games that are multiplayer in a deep sense, interacting across the Net.

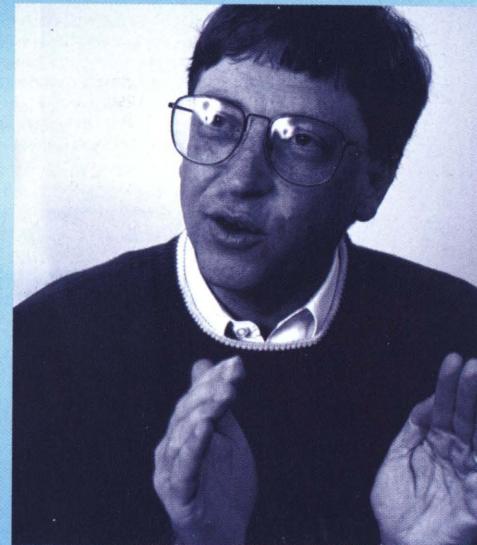
Edge The flip side of the coin: to what extent should gaming's current major players fear Microsoft's arrival? (Nintendo of America's President Howard Lincoln expressed considerable respect for Microsoft, but claimed awareness that 'They want to eat my lunch'.)

BG [Smiles] Well, not really. I mean, are game consoles and PCs in competition? In the sense that you walk in and choose between a Sega and a Sony, it's not quite the same. Usually, if you want a PC and the kind of richness and general purpose things that it provides (bring your work home, write your homework, etc), then you generally know before you walk in to the store that you want that. It's possible that when you buy a PC, then you say, 'Hey, now I don't need to buy a game platform, I'll just do everything on my PC.'

Edge So you don't see either the PC or the dedicated game machines eventually dominating the market completely?

BG In terms of one totally wiping the other out, no. I'm a PC lover and so I can tell you the schtick from somebody who's got a bias toward the PC. For every kid [with a PC] – even at a young age – there's great learning software. It's worth it if you can afford it. It's great exposing them to that.

Then as they move up into the age where they want action games or whatever, then hey, the PC's going to be there. And it is the most flexible device. The fact that you can actually store things away, the fact that you can add on to it,



Photograph by Mark Webster, the Lakewood school and The Microsoft Archives

Microsoft was once the second largest company in Redmond, due to Nintendo. No more, however

the fact that it has a display with better resolution, it's got a keyboard. There's just a lot of things you can do with a PC you can't do with a game machine.

And so, I think as PCs have very high penetration into homes, it's possible there would be a substitution effect against game machines. But, that's not to say the game machine category won't be there.

Edge One thing the PC doesn't have (that companies like Sega, Sony, and Nintendo do have) is a dedicated marketing operation whose sole purpose is to promote each game

Are game consoles and PCs in competition? In the sense that you walk in and choose between a Sega and a Sony, it's not quite the same

console as the ultimate gaming platform. Are you willing to take on this role for the PC?

BG I'd say it's a role, and it's up to us to do that. Certainly to evangelise to software developers, that is totally our job. On a relative basis compared to a few years ago – and even on a relative basis to some of those game console suppliers – and in the absolute, I think you'd find that ISVs [independent software vendors, ie game publishers] say we're doing a pretty good job.

But it is our job to do the evangelism. Intel is often a help on these things, as are some of the system manufacturers, some of the board and chip manufacturers. But we're in the lead spot.

In terms of a message to consumers I think content rules. Nowadays, you don't see many ads about the consoles – instead you see ads about the games you can play on console, or see a cool kid playing these games, and you'd be like him if you bought one.

Edge Do you see content currently stronger on the PC, or on the games machines?

Continued next page

Continued

BG I think boxing games are better on the dedicated consoles. But if you get really broad and include *Myst*-like games, I mean, give me a break! There you need the storage and richness that comes with a PC.

The term 'game' is a very broad term. The phenomenon of what's gone on with the game consoles is a fairly narrow part. There's a particular demographic with which the game console is strong, but the PC is much broader than that. So they both have relative strengths.

Edge But the console people would reply by pointing out that as long as a £200 game console can do things that a £1,500 PC can't, there will be a market for it.

BG We're not going to have any more inversions like that. PCs will be a superset in every way – certainly all the PCs that ship in '97, and you'll never see that inversion re-emerge.

Edge So you're saying that the PC's graphics power is going to take off and never look back?

BG Well, it's my job to see that this happens. We are keenly aware of the comparison [between PCs and the 32bit game machines] and I have almost no doubt we'll meet that test. The only advantage that the Sony PlayStation has is better

the kids' rooms. Won't games inevitably be played in the living room and not the home office?

BG For certain types of games, that's true. Sometimes, you'll have a PC in the living room because it will be the central controller there. But you're right, the scenario where you've got your game machine in the living room and you've got your PC in the den, that may not go away.

But the game machine has a pretty narrow appeal, in terms of the demographic. For really young kids, for girls, and for a lot of adults, the breadth of software that's really been out there for the game machines is not very rich. It's not like people do encyclopedias, or movie guides, or learn arithmetic from videogames.

Edge Sure, but is this because, with no keyboard and no hard drive, the game machines can't handle these types of software, or is it simply because the market hasn't asked for them yet?

BG I'm not sure how you separate those two things out!

You know, it was always possible that one of the game machine guys was going to create some expandability and essentially grow it up to a PC. It was the Philips system, called

CD-i, which was sort of supposed to be expandable (in as much as Matsushita showed it with a hard drive in it) and it was supposed to also be a games player type thing. It was an attack on both game console and PC. It was a device that kind of basically got caught in the middle. It was a terrible game machine, and it was a terrible PC.

I can say that now because the thing failed. But Philips put real money into it. Well, I knew I was worried about it. They put real money into that thing and they had a lot of content. There was a lot of evangelism going on, and some fairly creative ideas. They never did figure out, though, that you had to have good action games on the thing, so the hardware design and the evangelism never focused. It was always too soft. A little bit of golf or a little bit of opera, but nothing jazzy enough to make it move.

Edge If the CD-i needed good action games then, any world-conquering game platform is going to need good action games now. But – as we've already pointed out – a £1,500 PC can't do many action games as well as a £200 console.

BG Oh, I agree. But we're getting good action games. I mean, look at the number of things we've done to get good action games onto the PC.

Microsoft's evangelism even includes the software developers inside these game console companies. You'll see most of the console companies taking their software assets and porting them over to the PC. That's a big step forward for us. We have an operation, which is a joint venture between Microsoft and SoftBank, called Game Bank. So if the

developer of cartridge games doesn't want to do [the PC conversion] themselves, than there's a company there that will do it for them.

Meanwhile, we convince them to do it directly. So, I don't think there will be many action games that are on game consoles that aren't on PCs and I think there will be quite a few on PCs that aren't on a game console.

Edge And where the two games coincide the PC version will compete

with, if not be better than, the console version?

BG That's our job. And so if we fall short then we say, 'OK, let's fix that.' It's very hard for a device without storage to come in and compete with a lot of these things.

You want rich games to remember what level you're at, what you've done, and how to connect up to your friends.

Edge Microsoft is increasing its focus on the gaming industry

Philips CD-i was an attack on both game console and PC. But it was a terrible game machine, and it was a terrible PC

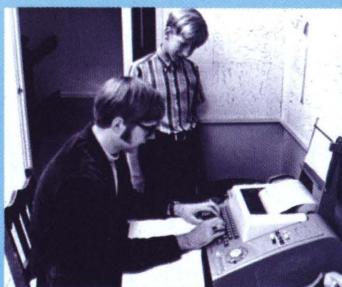
texture mapping than most graphics cards for the PC. But when we demonstrated at the Windows Hardware Engineering Conference [last April], the 3Dfx demo of *Valley of Ra* was way better than any game console. And that's a special add-in card that will be on PC motherboards early next year.

Edge Playing devil's advocate a little, we're going to champion game consoles. And one huge advantage that they have over PCs is that you play games on the big-screen TV in the comfy living room. Whereas to play games on the PC you typically have to sit close to the screen, alone, in a straight-backed chair, in the 'home office'.

The console way is much more fun.

BG You have a very good point about the device that you sit close to and use with a keyboard, versus the device that you sit far away from. With the PC – because of the resolution of the screen – you can read text and you can sit close to it. And it's got a keyboard.

The TV is typically a larger-size screen and the dot-pitch isn't nearly as good, but you sit far away and you mostly watch video-type material. So for multiplayer [gaming], where you're both on the same screen, either you're going to [play



From poor nerd to... unfeasibly rich nerd. The young Bill Gates (standing) was into computers even then (left). The Microsoft team in the early years – now a company boasting hundreds of millionaires (middle). Bill Gates today (right)



on a game machine] or you're going to plug the PC in so that it's driving your TV. And there is more and more of this going on. A lot of projection TV sets are going to have VGA connectors. And VGA-to-NTSC conversion is not very expensive. We need to make that easy.

Edge But this is as much a battle of household territory as anything else, and the game machines have already grabbed the prime game-playing locations: under the main TV, and in



in three major ways. First, now more than 50% of Microsoft-owned Softimage's revenues come from sales of graphics software to game developers. Second, *Windows 95* is now being promoted as the best way to play games on a PC. Third, Microsoft is ramping up its game publishing division, from releasing just four titles in 1995 to a scheduled ten in 1996.

Is this merely a few divisions of a large company unilaterally moving to the gaming sector, or is this part of a larger company objective?

BG Well, hopefully it's a larger company objective [laughs]. We certainly set out as such. You know, the use of the PC in the home environment is increasing and gaming is a big part of that. People love to play games, and most of the things you do to make games better are things that apply to other software as well. I mean, enabling the audio to work well and the graphics to be fast. Games are a great way to measure progress there because game writers are just super-demanding, and they've basically ignored *Windows*. Up until *Windows 95*, the way you wrote a game was by writing around the operating system. Even Microsoft's own *Flight Simulator* was a *DOS* product, and it's only now that we're building the *Windows* version of that.

And it was all just about speed. That whole notion of 'Do our graphics layers give flexibility, or do they just slow things down?' Well, there's no harder-core audience than the gaming community to go out and ask, 'What does it take?'

It always causes problems if you go around the operating system. I mean, like installing *DOS* games a couple of years ago, where you had a different audio card, or you sometimes used *Windows*, but you'd like to run games that didn't work under *Windows*. It was a nightmare.

And we're just working our way out of that. With the broad popularity of *Windows 95* and the support from the gaming guys and the hardware guys, we're finally to the point where a person can say, 'Yeah, you don't have to know somebody who's an expert to do these things.'

Edge And *Windows 95* has really been the focal point for all this effort, with providing an easy-to-use 'plug-and-play' environment?

BG Games don't use the file system very much. So, basically, until *Windows 95*, games were written to the hardware. Now, with the variety of audio cards and graphics cards that are out there, it was becoming as much of a nightmare for the developers — testing and installing — as printer drivers were for productivity applications before, say, a decade ago when we finally started to get those into the operating systems. Nobody today thinks, 'Oh, I'll write a unique print driver.' That's Microsoft's problem.

And so we said, 'Hey, we're going to make *Windows 95* attractive for game developers, so they'll stop writing *DOS* applications.' I'm sure some people here were sceptical about ever getting those guys to stop going around the OS. Part of our breakthrough was that it turns out that — because the blitters all worked a little bit differently — PC hardware actually has some acceleration capabilities that the *DOS* people weren't using. But by abstracting those blitters out, we actually gave people a layer where games often would run faster than they had with *DOS*. And this started to open people's minds.

Edge Let's talk about *Direct3D*, Microsoft's effort to make all PC graphics accelerators compatible with all software (when running *Windows 95*, naturally). *Direct3D*, in theory, provides the illusion of a standardised 3D graphics acceleration specification. Because of the slight overhead of the *Direct3D* APIs and drivers [having to 'go through' *Windows 95* slows the program down a little], when one writes directly to the hardware and bypasses *Windows 95*, there will always be a marginal speed boost.

Since marginal increases are often what separates a killer app (*Doom*, *Mario*) from the 'also rans', isn't there a danger that game developers will still bypass *Direct3D*, and hence Microsoft's software, in pursuit of a competitive advantage?

BG No. Three percent performance gains do not make the difference between a killer application and...

Edge You're sure *Windows 95* will only suck a 3% performance loss?

BG Our job is to make sure that 3% is all it is.

The thing that you're spending time on is drawing the polygons or

You pay for the connectivity to the Internet. Because the competition to provide that is immense, multiplayer gaming really can thrive

filling in the textures, and for this the API is thin to the accelerated hardware, and you're not going through it again and again. If we find a case where somebody wants to go to the hardware [thus bypassing *Windows 95*], if they're really going for that extra 3%, we'll tell them they're crazy because it'll make their job a nightmare. They'll never be able to keep up with it. But if [the advantage of bypassing *Windows 95*] is more than 3%, then we need to make sure our API improves.

Edge Online gaming is currently the industry's holy grail. When do you think that true multiplayer, online gaming will be a reality?

BG The lack of success of, say, the *ImagiNation Network* [a US online gaming site], has always been interesting. I don't use *ImagiNation Network* a ton, but I do use it a little because I have some people I play bridge with over the system. I think that — if it wouldn't crash [laughs] — it's pretty nice. But I think the pricing model there has held things back, and so it just didn't get to critical mass as a place people come to. With the Internet, on which you are going to be buying the connectivity for partly nongaming reasons — and there's no doubt the competition to provide that connectivity is going to be immense — it means that multiplayer gaming really can thrive.

There's ourselves (and probably a couple of dozen start-ups) who believe the Internet will be the place where multiplayer gaming takes off. And so the level of investment is phenomenal. This is a gold rush period for anything related to the Internet, and games will not be any exception.

Continued

Edge So what is Microsoft doing to make online gaming a reality?

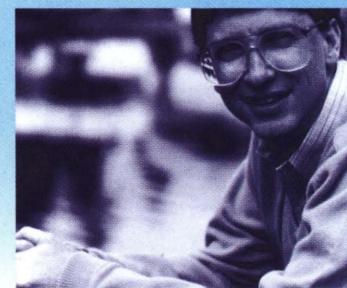
BG What we're doing with these direct multiplayer game APIs [as part of Windows 95] is abstracting the need for the game companies to bet on what type of connectivity comes along. If they just use the DirectPlay API, then [their games] work on local area networks, they work on the Internet, they work on a local server, dial up – and the user just gets to pick how he or she wants to go out and meet people.

DirectPlay will help on multiplayer games because, in the past, somebody doing multiplayer games had to think it through for themselves – 'OK, what do we want to do about meeting lobbies? What do we want to do about protocols? and all those things. Now they don't have to worry about these things. And so, two years out, the percentage of PC games that will have a multiplayer aspect will be 70% or 80%.

Edge Do you play games yourself?

BG Well, I'm a reasonably avid poker, bridge, chess, go, and checkers player.

I played the videogames of the time, when I had more time: *Frogger*, *Pac-Man*, *Defender*. And back at Harvard I played with the PDP 1 that had the original *Space War!* game, with vector drawing. The original cool PDP 1 application, in my dorm at Harvard when I wanted to waste time,



Nintendo isn't locking people up so they can't write for the PC – it was able to do that for other game platforms, but never the PC

was *Breakout*. That was the cool game.

Edge At the time of Microsoft's creation, did you ever think about making games?

BG When we first started Microsoft we thought, 'Well, should we do games?' And I went and met Nolan Bushnell [the creator of *Pong*] and hung around Atari, and talked to them. We always thought, maybe we'd get around to doing games in those early days because the kind of hacks that you had to do to make the games work were kind of appealing. But, that never became a focus.

Edge Do you not think that with an 8bit game machine in over one third of all US homes [the NES], Nintendo could have leveraged its success into other areas of the computer business?

BG Oh, it's unbelievable. I mean, we're in this funny little suburb called Redmond in Washington and, when we first moved here I said to people, 'Hey, we're the second largest software company in Redmond.' At least during the fourth quarter, good old Nintendo would outsell us. Now, that was when they ruled the roost, and the fad was in full swing. And now, it's not quite as monolithic.

But, when you talk about business, 'fear' is maybe not the perfect word to use. You have to have a real sense of what good work other companies are doing. You have to acknowledge their work and figure out, well, can you partner with them? Or do you internally or, through other partnerships, find those same things?

On the PC platform, we can recruit a lot of game developers. Nintendo isn't locking people up so they can't write PC games. Historically, Nintendo was able to do that versus other game platforms, but never the PC because it wasn't on its radar screen.

So I don't think fear is the right word.

We've always had this question of the boundary line between game machines and PCs. When **Trip Hawkins** was first starting 3DO and talking about his visions, which were very good – he's a very smart guy – I wondered, 'Wow, jeez, maybe he's going to draw the line between the PC and the videogame a little bit differently than I'd like to see it.' [laughs] But now he's not – at least as far as I know – a force in this arena.

Edge So what happened to Trip Hawkins' vision? Why didn't the original 3DO machine work out?

BG Well, there's this notion that you can sort of rip off Japanese companies and – no really, I mean, that's sort of the 3DO model.

It's kind of rude [laughs] to have a business model where you let a Japanese company do the commodity part, which you're licensing to them non-exclusively, so they don't get any of the upside of the software royalties, but they get just the console part, which is the money-losing part, and you keep the game royalties.

It's hard to say why the pieces didn't come together [for 3DO]. If the price had been different at one point, if they'd have had a few more software developers... But the business model always had a bit of a problem in that 3DO didn't have enough money to

make the platform successful and yet the piece Matsushita was given – even if things went well – well, they were just going to be a commodity supplier of that piece.

Edge So do you think that any game machine thrive in the price bracket between £400 and, let's say, £1,000? History would say no.

BG I think it's pretty tough. It's pretty tough to squeeze something in the middle there. [When considering game machines] people are going to say, 'OK, a few hundred bucks to keep my kid happy... I guess.' Although they probably don't realise how many cartridges they're going to have to buy as part of that [laughs].

Edge What does Matsushita have to look forward to as it plans to enter the arena with M2?

BG [Laughs] I think it's tough for somebody to come in with a new

platform at this point. I just think it's very hard to establish a new platform.

Everybody, in my opinion, is very impressed with how well Sony has done. I mean, if you'd handicapped Sega, Nintendo and Sony a couple of years ago, most people would have put Sony as third most likely to succeed. Fourth, really – 3DO had a lot of mindshare. And the fact that Sony's done as well as it has is a credit to it.

Then again, if you look at it financially, nobody's making money like Nintendo made in the good old days.

Edge A lot of people are saying that if the game industry is to move forward, it has to start producing games which resonate with adults. A lot of people are looking to the continued increase in graphics resolution and sophistication as the key to doing this, as adults will play once the games look less cartoon-like and more like real life.

Do you buy this reasoning?

BG I don't think so. I mean, if you get better graphics then maybe you can do different types of games, which may draw in those people. But it's not like you take boxing and make it high-resolution and then all of a sudden 50-year-old men say, 'Wow, hey, I'm not going to the football game tonight, I am going to play that new boxing game.' [laughs]

Until you really get the Internet, where there are other people and an element of socialisation, I think it's pretty hard to pull the adults in. I think that with the Internet, and the kind of socialisation that's possible, the boundary between what's a game and what's not a game has always been a little bit unclear. And I think it's set to become even more unclear in the future.

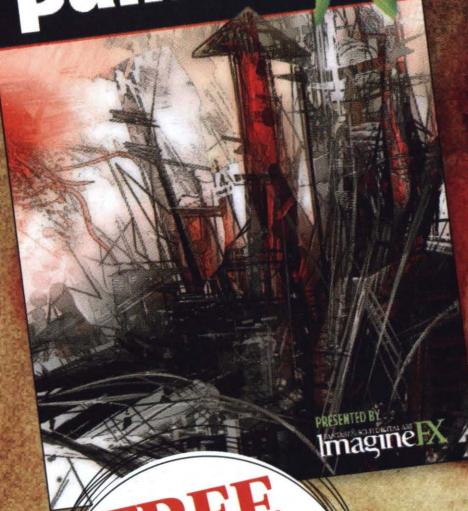
I mean, if you're walking around in a fantasy space and you can do things that aren't normal things, is that a game? Or is that just an Internet superchat kind of thing? Well, the taxonomy is going to get so rich, that it won't be a black-and-white dividing line in this new world. Particularly with the PC, where you're going to get so much power and a high percentage of them with an Internet connection as part of that package.

As we fudge that spectrum, then we'll start to pull in a much broader demographic.

I mean, that certainly is our goal.

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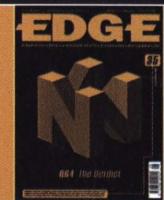
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Currently making headline news with its *Cyberlife* artificial life technology, Millennium

Interactive has come a long way from the days of

James Pond.

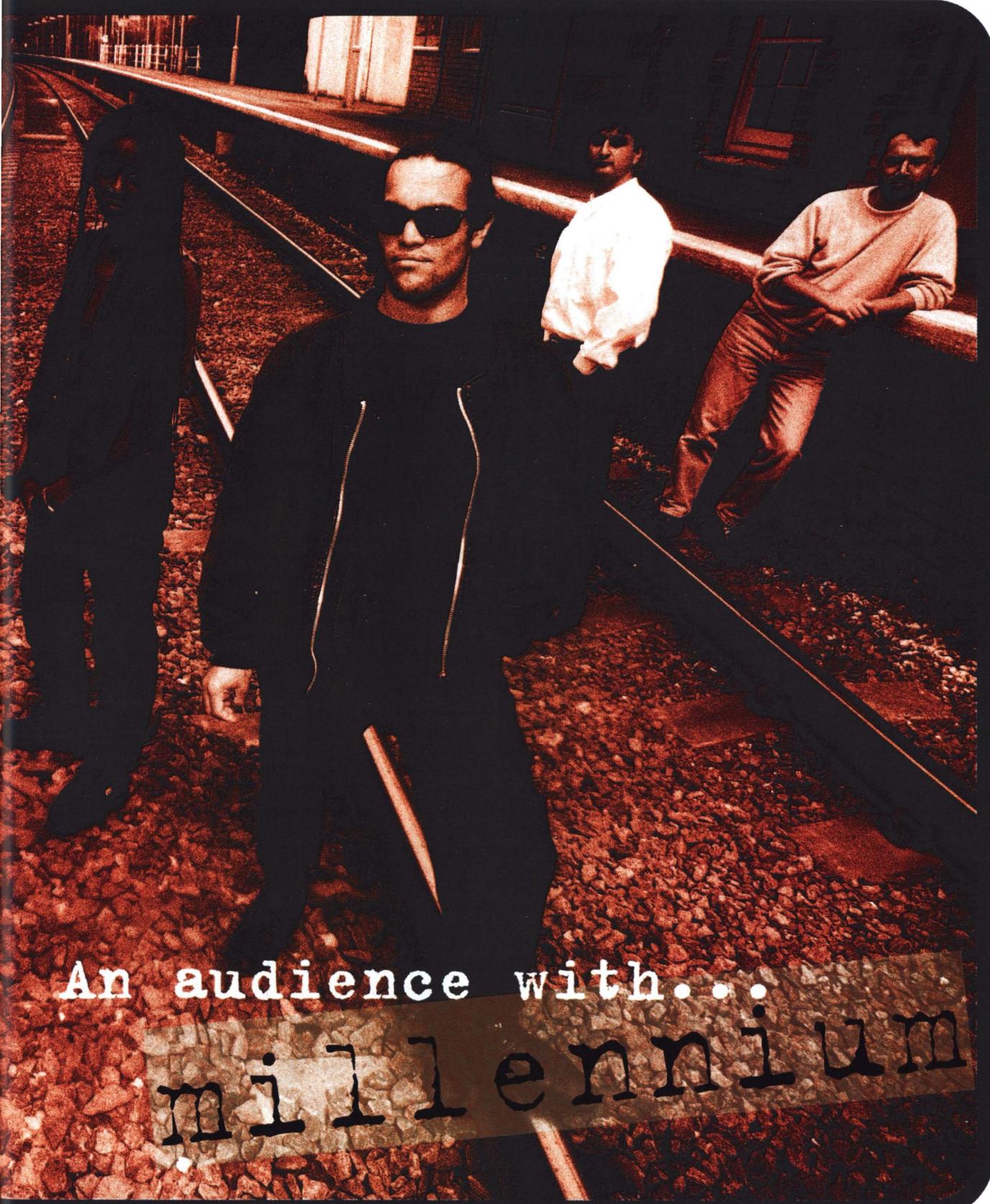
Edge tracks down the company breeding *Creatures*.



It's not often you see **Edge** address a game developer with a remark such as 'You must have a pretty smoking engine, then', but the work going on at Millennium's Cambridge HQ is evidently cause for some excitement. If it delivers on its *Ghouls 'n' Ghosts*-inspired premise, Saturn game *Medievil* may be one to watch.

Photography by Jude Edginton

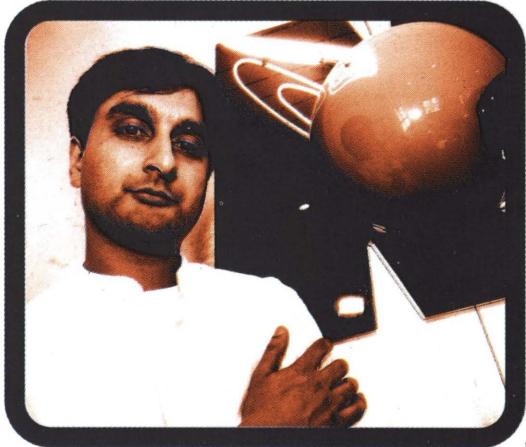




An audience with...
millennium

Continued

In 1988, from the ashes of Logotron, a small purveyor of educational software, rose the phoenix of Millennium Interactive. Initially distributing and publishing games picked up on an ad hoc basis, usually from 'bedroom independents', co founders **Michael Hayward** and **Ian Saunders** soon directed their burgeoning resources to in house development. The early nineties saw a string of popular games for Sega and Nintendo, most notably the *James Pond* series, and in 1993 Millennium ditched its publishing arm to become pure developers. Since then it's appeared to the casual observer to be largely dormant, with only a handful of work for hire jobs (such as *Raymond Briggs' The Snowman*) and the fairly well received *Defcon 5* to its name. In



reality, however, it's been busy creating a totally self sufficient development facility complete with state of the art video, audio, and digital video suites. In fact, in the last year alone, Millennium has doubled in size. So where are the games? **Edge** paid a visit to the Cambridge HQ to talk turkey with its dynamic and loquacious business development manager, **Anil Malhotra**.

Edge It's been a difficult 12 months. Do you think the industry has emerged healthy?

AM Yes and no. In terms of other consumer products - films, records, books - computer games sell in pathetically small quantities. A company like Nintendo can claim comparable profits but it is reaching much fewer people. The problem is, most games are still designed for the same kinds of people who like the same kinds of things. I think the PC in particular will break down those barriers. And if I were to back one

horse in the platform race it would be *Windows 95*, undoubtedly.

Edge With a graphics accelerator? And if so, which one?

AM VideoLogic seems like a good company and I like its technology. But although the 3D boards will be important, the interactivity of *Windows 95* will carry the day. The ability to just plug and play on the network - when you see Microsoft that determined you know they're going to be a player in the market. I guess a lot of the games will be a little different from the standard console fare. There'll be a skew towards intellectual fascination rather than fast reflex. That's going to be the mould for PC style gameplay.

Edge Interactivity seems to mean different things to different people...

AM What I mean is a bit like playing cards or Battleships, where what's important is that you're playing against me and we can make things happen in realtime.

Edge The usual conception of 'interactive' is a two-way bridge between player and software. You seem to be envisaging a bridge between two people.

Unless *Mario 64* and the others are the best videogames of all time, Nintendo have blown it

AM I'm interested in lifelike software rather than just software that's clever at solving problems or copying how life systems work. And if this advances much further over the next ten years, you will, to a limited degree, be able to surrogate your own personality in a software agent. Imagine sending that off down the line while you were asleep or on vacation. You could make it how you want. You could be truthful or you could emulate a woman. It's cheaper than buying a new wardrobe.

Edge And what about the consoles?

AM You have to bet on Nintendo. Largely because they just know how to make damn good games or get damn good games made for them. You hear all these spurious reports leaking through the Internet about delays due to 'hardware problems', 'overheating on the motherboard', etc. but the real issue is that they want this to be the best game system you've ever seen and the thing that will make it the best is the games. I think they're being shrewd. Just waiting until the software is



perfect. However, unless *Mario 64* and the other launch titles are the best videogames you've ever played, they've blown it.

Edge Who else is there room for?

AM Sega are very bullish at the moment but on the other hand the genuine reality of your prospects are often inversely proportional to how bullish you feel about them. The PlayStation's interesting. I've got mixed feelings about it. It's a good machine and Sony launched it well but a lot of people are disappointed by the average quality of its games.

Edge Perhaps due to the fact that it remains a slave to third parties. Twenty mediocrities

don't make a single genius.

AM Right. As I understand it there were in the region of 500 to 600 PlayStation titles in development last Christmas. It's too many. I think Sony realises this. We've just had a couple of original concepts approved by SOA and it's suddenly changed the rules of engagement. Now it's very particular about what it'll allow you to develop or publish and suddenly very interested in whether you're leading on the PlayStation.

Edge But is this a sign of positive discrimination or negative conservatism?

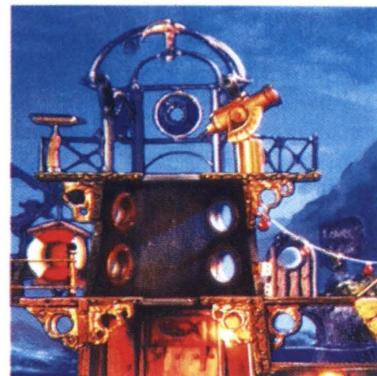


Creatures

In *Creatures*, the first product to use the much vaunted *Cyberlife* technology, the player starts with a set of eggs which they can hatch onto their PC and into a 2D world of about 12 screens wide and three high. The cuddly infant's environment is populated with about 40 objects (food, fire, enemies, etc.) for it to interact with and learn about and, after about a week, an average precocious creature adolescent with a stirring in its loins will be in a position to breed. Its offspring will have a distinct genetic code and, ipso facto, features and traits of its own. In fact, scientists at Millennium claim they have no way of predicting what sort of lifeforms will emerge a few hundred generations down the line.

Millennium is clearly hoping people will adopt its 'creatures' as virtual pets and, moreover, will participate via the *Creatures*

Website, in 'the world's largest artificial life experiment' in which whole communities of creatures will evolve on the Net. This all sounds most intriguing - not to say downright scary - but whether or not these 'creatures' have sufficient personality to engage the heart as well as the mind remains to be seen.



Creatures is the first game to incorporate the revolutionary *Cyberlife* technology

Brains in Planes

Millennium's first 3D racer is set in a 23rd century dystopia of peace, harmony and total boredom, where outlaw racers get their kicks from racing ultra-fast planes around the cities of the future. However, because the human body can't withstand the extreme G force, the

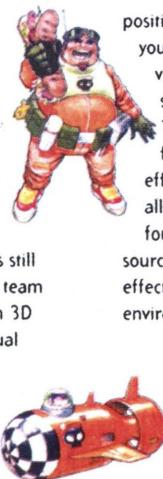


Brains in Planes introduces oddball characters and a high-end 3D engine

racers must remove their brains and plug them into the craft's circuitry.

The *Brains* team hope to have at least six circuits on offer, all boasting multiple routes, short cuts, and horizontal and vertical hazards (pedestrians, police vehicles, moving scenery) in true 3D space. Game modes will include multiplayer, tag, battle and time trial. The first track is still being tested on Alias but even so the team feels confident that Millennium's own 3D libraries will deliver an awesome visual experience. All the planes will be generated on SGI and, in game, will be tracked by a selection of three thirdperson camera

positions. Cleverly, anything that could obstruct your view is rendered in transparent polys so vision is unimpaired. The crudity of depth shading will be avoided by constructing 3D maps to limit the viewable distance from any point on the map. Graphical effects will include a particle system allowing for spectacular explosions, fountains, exhaust streams; multiple light sources and lens flare; and a dazzling chrome effect achieved through the use of environment mapping within the graphics API. *Brains in Planes* certainly has the credentials to be an attractive and original title, and, if the team's commitment to gameplay holds true, it might even be fun.



Medievil

With the avowed intention of matching the rich, twisted art design of Tim Burton's *Nightmare Before Christmas*, the classic arcade gameplay of Capcom's *Ghouls and Ghosts*, and the dramatic 3D of the *Alone in the Dark* series, the *Medievil* team could hardly be accused of lacking ambition.

The quest of the hero, Sir Daniel Fortesque, encompasses a mixture of shoot 'em up and exploration set across 11 areas ranging from a graveyard, through an asylum, to a battleground, each offering a distinct playing environment. Sir Dan can jump, duck, and use both handheld (sword, battle axe) and projectile (lightning bolts and crossbow) weapons against the sorcerer Zarok's malevolent minions. Plus, for sheer variety, there are *Clockwork Knight* style mini sections



Mixing *Ghouls 'n' Ghosts* action with *Alone in the Dark*-style exploration, *Medievil* offers a selection of aesthetic reference points

in which you get to control Dan's sidekick, Morten, a small worm.

Technically, things are shaping up nicely. All the game characters and backgrounds are true 3D objects (either texture mapped, Gouraud, or flat shaded), lit with parallel

ambient and point light effects, with the realtime 3D display engine delivering an update of 30fps. If the game matches the technical expertise and the imagination and thoroughness of the design, *Medievil* could be a serious contender early next year.

Continued next page

Continued

AM If I was Sony I would be a little anxious right now because I've not yet had a mind-blowingly good hit. The other reason I'd be worried is that there's probably a short fuse in the marketplace for whether a console's going to make it or not. With N64 just around the corner how much time has Sony got left to turn its machine into the must-have console - Christmas, probably.

Edge What games are you working on and for what platforms?

AM All our games will appear on Win 95, but we'll be leading on the PlayStation with *Brains in Planes* [see boxout], a 3D racing game featuring futuristic cartoon craft. The general idea is to make the thing as unfeasible as possible. Racing up the side of a skyscraper and through the window of the block opposite. Keeping the physics persuasive is obviously part of the trick. We want the speed and pizzazz of a *Wipeout*-style game but incorporating a greater feeling of freedom and openness. We also want to engender a feeling of close-quarter competition in 3D. So you can overtake above and below as well as left and right.

Edge You must have a pretty smoking engine, then.

AM In fact, we just dumped the last 3D engine - it wasn't quick enough. The one we've got running downstairs is just a week old. We're going to get the speed almost too fast to start with and then slow it down to the right speed as we add more and more detail.

Edge What about the Saturn?

AM We're working on *Medieval*, a 3D arcade-action adventure akin to the *Ghouls 'n' Ghosts* genre. You're looking at some platform elements and some puzzle-solving elements in a tightly focused set of levels. The premise is that you control a knight, Sir Daniel Fortesque, who has been brought back from the dead in skeletal form by accident by an evil wizard. Unlike most of the creatures in this world you remember that you were once a good guy and set about following the wizard's trail to his lair. The action is viewed from a third-person perspective but the viewpoint alters according to the style of level. We move the camera logically to provide the best angle as well as to heighten the drama.

Edge Both projects look extremely promising. But neither, perhaps, are likely to 'break down the barriers', as you put it.

AM What you have to do to break down the barriers, and what we're trying to do, is to launch a product almost based on its novelty. Which is risky because it flies in the face of the classical marketing model, ie give the people what they want.

Edge So what have you got up your sleeve?

AM We have *Cyberlife*. We're not trying to simulate the way life works using computer software (the AI solution), we're actually trying to model the way life works by copying biology. Which is the difference between AI and AL (artificial life). Biology is made up of a load of different things that make people tick and we want to copy those, put them together, and see if we can make software tick in the same way.

Edge How did *Cyberlife* come into being?

AM One of the things that's always disappointed us about games, racing games, or a *Doom*-style game, is the terribly predictable characters you have to deal with. Imagine what it would be like to imbue your opponents with a measure of life-like response and the ability to learn how you play the game. Once the bad guys have seen some of their colleagues lain to waste they're going to think



that what was needed was software that captured the essence of human behaviour.

Edge Which is unpredictable but not erratic. The difference lies in the ability to learn.

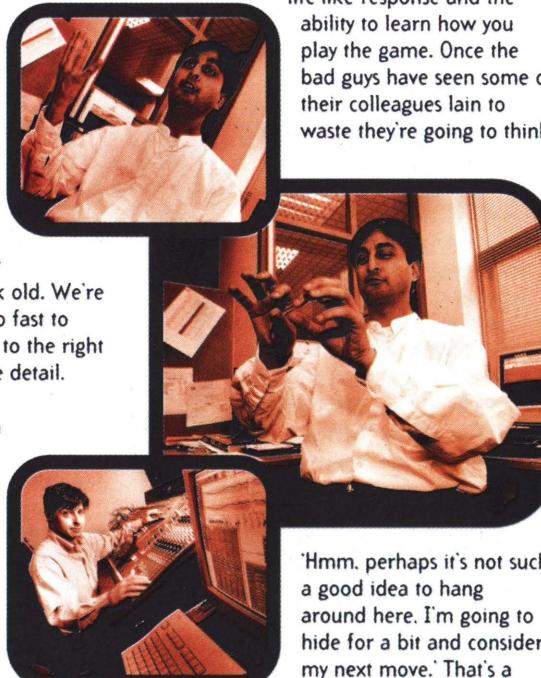
AM Right. We started by mimicking a system that could have punishment and reward effects, ie. if an in-game character got shot coming round a corner he might try another approach next time. But trying to write motivational rules becomes absurdly complex. So we took a completely obverse view. What if we model the way motivation works. How an organism responds to a set of stimuli. Take hunger. When your glucose levels fall your biological system gets hungry. That stimulates your brain and if you've never eaten before you've got to figure out what to do. Stick some things in your mouth and see if that helps. Which it does, and the brain remembers. It's like a feedback loop system. Add fear, anger, boredom and the other drivers and you're getting towards a real person.

Edge Even taking things bottom-up rather than top-down must have required a prodigious amount of programming.

AM Over three years. But we can now create a creature for whom the property and nature of an event causes a series of things to happen in its system triggering a decision. From just trying to make in-game characters a bit more authentic we were actually beginning to push towards creating a proper little virtual life form. Which is how *Creatures*, the first game to use the *Cyberlife* technology, came to be developed.

Edge How would you describe *Creatures*?

AM It's a genuine life sim for the PC. It's the first attempt by anybody in the software industry to develop such a thing. You hatch a creature into a virtual world full of objects - fire, water, food - and modify the environment in ways that allow it to learn. Once *Creatures* is released we'll be applying the fruits of that research to more traditional game genres. People are going to be able to do things with computers that they have never been able to do before. I think you'll be quite surprised.



'Hmm, perhaps it's not such a good idea to hang around here. I'm going to hide for a bit and consider my next move.' That's a much richer experience.

Edge How is this distinct from clever AI?

AM I mentioned earlier what I wanted from interactive games. I wanted to play another human being. AI can't achieve this because from a programming point of view you have to prescribe everything that could happen at the outset. Even if you manage 50 permutations the player's still going to say after a while, 'Oh, it's that one again'. Fortunately for us, one programmer in our company was a biologist by trade rather than a computer scientist. He understood

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Videogames 'speak' via images on a TV. Twitches of a game controller make up the language with which players 'speak' back. It's a basic dialect, but interactive entertainment would be impossible without it. And it's about to change forever...

Digital dexterity

The art of videogame controllers past, present and future

Is game control about to undergo a dramatic change? That's the bold plan of force-feedback technology specialist Immersion Corporation, whose work is said to be under consideration by the likes of Sony, Sega and Nintendo for use in console setups. For now, though, just soak up the sights of all these classic sticks...

Games have made paradigm shifts in the past 24 months into polygonal, 3D, texture mapped, multiplayer experiences. Meanwhile, the evolution of the best mechanism for controlling games – the joystick – has lagged. All that is changing, however. In this definitive analysis, Edge looks at where the joystick has come from, where it is now, and where it's heading in the future.

The term joystick (which, according to archetypal US dictionary, Websters, was originally a slang term for penis) came into nonvulgar use at the dawn of aviation to describe the airplane flight yokes that controlled the elevators and ailerons of the craft, and were located between the pilots' legs. The first use of a 'joystick' device not directly related to the control of an aircraft came during World War II (the same conflict that spawned the precursor to the digital computer). During the war Germans used joysticks to control experimental bombs, and after the war ended, joysticks became standard equipment for controlling unmanned test flights.

'German pilots experimented with wire guided glide bombs which they controlled with joysticks,' says Paul Potera of the Strategic Development Division of ThrustMaster, a leading joystick manufacturer. 'They were launched from bombers and had flares so that the Germans could see a little red dot which they guided down to the target.' Since that time, the word has come to refer to any controlling device involving a stick which moves in at least two directions, even when that 'stick' may be a flat, cross shaped toggle switch – more commonly known as a joypad. Nowadays, as far as common language is concerned, the term joystick refers to any non keyboard device for controlling a videogame.

The first videogame joysticks were made in 1961. That was the year Steve Russell, a member of the Tech Model Railroad Club at the Massachusetts Institute of Technology (a haven for the first computer hackers), created the first computer game, *SpaceWar*. *SpaceWar* was a two person simultaneous, competitive shooter, which featured controls almost identical to *Asteroids* (although, it being MIT, the game featured authentic star maps for the backgrounds and a couple of other hyper realistic elements, including a deadly sun with real gravity and missiles that – in early versions at least – failed on a random basis). He built the game on a Digital Equipment PDP 1, and used toggle switches built into the computer readout display to control the game. To go left, for example, the player actually had to turn a 'go left' switch on, then off again – a very cumbersome procedure.

Making matters worse, to use these switches, players had to lean forward on their elbows which proved to be an extremely uncomfortable and clumsy position from which to play. In an effort to make *SpaceWar* less painful, two of Russell's fellow hackers, Alan Kotok and Bob Saunders, scrounged spare parts from the model railroad clubhouse and created the earliest descendent of today's game controllers, a small box with switches and buttons on top.

The basic version of *SpaceWar* was played off toggle switches on the console, and your elbows got very tired. Russell remembers, 'Most people eventually ended up wiring in push buttons. The PDP 1 had plug boards in the back that you could wire into, so it was a case of punching in a few wires to hook up switches as input,' he adds.

This step, replacing uncomfortable toggle switches on a panel with push buttons on an easily reachable box was

the first step in the evolution of the modern videogame controller, a device designed to give maximum control with minimal hassle.

If all this is true, why hasn't *SpaceWar* received the accolades it deserves as the forefather of videogames? Russell remembers the Digital Equipment PDP 1 on which *SpaceWar* was run as selling for around \$120,000, far too expensive to create any kind of consumer game. Though later Digital models such as the PDP 6 came with *SpaceWar* already installed (it was used by Digital as the memory test), the game still had a very limited audience.

It took the coin op videogame revolution of the 1970s to bring joysticks to the mass market. Though *Pong*, the first commercially viable coin operated videogame, did not have joysticks (it worked with a one dimensional paddle) a few other *Pong* knock offs, such as *Paddle Ball*, did. *Space Race*, one of the early Atari arcade games, also employed joysticks.

Joysticks took a similarly long time to reach widespread acceptance in the home console scene. The first home systems, such as the Magnavox Odyssey 100 (an analogue videogame system) and *Pong*, were dedicated ping pong machines controlled with twisting knobs. It was only by the time the Atari 2600 Video Computer System (VCS) reached its apex in the early eighties that there were three main ways to play videogames: with a paddle (*Pong*); a push button (*Space*

Nintendo introduced the four-way pad with its Game & Watch series. It holds the patent for this type of controller to this day

Invaders); or a joystick (*Pac-Man*). And it soon became abundantly clear that the joystick plus button(s) combo was clearly the most flexible and intuitive (and hence dominant) control mechanism for electronic games, a situation that remains to this day.

However, there were still a few subtle evolutionary steps between the joysticks of then and the game controllers in use today. In 1980, while most of the industry continued using standard variations of the joystick, Nintendo introduced a patented four way directional 'pad' on one of its earliest consumer electronics products, Game & Watch. It holds the patent on this type of directional controller to this day. In 1981, Bandai Electronics used a similar controller which it called an 'eight position action button' on a handheld game called *Space Chaser*.

Although directional pads were initially developed because they were more compact than joysticks, it was



M Network's TRON stick (left) and Atari's classic 2600 controller (right) – a joystick still regarded by many as incredibly comfortable and versatile to use



Continued



From left to right: CBS's driving module for its Colecovision console, developed specifically for use with the machine's version of Sega's *Turbo* coin-op; MB's four-button joypad for its revolutionary Vectrex console; the standard Mega Drive joypad; Mattel's PowerGlove device for the NES - a novel idea but ultimately a failure

discovered that they were also much more comfortable to use. While a full sized joystick worked well in the arcade, holding a smaller joystick in your hand for hours at a time tended to cause cramps. Perhaps the designers of the Mattel Intellivision took this into consideration, since it was the first home console system to use a direction pad, which it called a 'control disc'. Mattel executives said it had the 'functionality of both a joystick and a paddle'. It didn't, but that's beside the point.

Meanwhile, the Atari 5200 introduced a bold new development in joystick technology, a joystick that did not

It took the coin-op videogame revolution of the 1970s to bring joysticks to the mass market

snap back to a centre position when it was released. It was not even a mild success. In fact, it was perhaps the biggest failure ever in game control, if not videogaming in general. The Atari 7800 controller featured a long, slender base with a stick at the top, designed to keep hands from cramping. Again, nice try, but the stick hurt one's hand almost as much as the 2600's chunky base. ColecoVision had no less than four controllers available for its system, from a mini joystick to a steering wheel, a trackball, and a larger 'super action controller', which was a unit featuring a handle with trigger buttons, a keypad, and a small joystick on top. Which console had the best joystick became an academic concern after 1983, when the market crashed and gamers deserted in droves to personal computers.

Even when videogames did re-emerge with the NES and then with the SNES and Mega Drive 16bit era, the joypads were essentially the same. Sure, the Jaguar and SNES added considerably more buttons, but the basic joypad format had been established. Even the 32bit era of controllers (the PlayStation included) are merely reworkings of the same basic design that Nintendo patented 15 years ago. Imagine how dull videogaming would be if graphics or sound had improved so little over the same period...

On the PC side, keyboards and joysticks have traditionally remained the only game controllers of choice for computer players. In fact, until the latter half of the

1980s, most computer joysticks still had the same stem and swivel design used by the Germans in World War II.

More importantly than just in design, computer and console joysticks differ fundamentally in the way they give information to the CPU. Until very recently, most console controllers were digital, and most PC controllers were analogue (see Analogue versus digital, page 55).

Microsoft inadvertently set the direction of personal computer peripheral design forever with the release of *Flight Simulator*. More than any game before it, *Flight Simulator* demonstrated both the PC's ability to handle realistic flight simulations, and the standard joystick's inability to handle all the range of player input needed to get the most out of the software. As more sophisticated flight simulations hit the market, CH Products, ThrustMaster, and a slew of competitors released more realistic controllers, lending an 'aviation bias' to the whole PC joystick industry that continues to this day.

In 1987, CH released the Flight Stick, which was, for the time, an extremely realistic looking analogue joystick. In 1990, ThrustMaster released the Weapons Control System, a throttle with programmable buttons that replaced keyboard commands. Later that year, an engineer at ThrustMaster named **Frank Bouton** designed the first joystick with the oddly titled 'coolie hat', a four way button at the top of the stick used for targeting and sight control. The coolie hat was included on the Mark I, ThrustMaster's first joystick. Capitalising on the hot flight sims market, CH Products released the Flight Yoke. Looking like the yoke of an airplane, this was wonderful for *Microsoft Flight Simulator* and driving simulations, but not well suited for military flight games.

With the increase in the PC's penetration into 'family' households, the pace of advancement in PC joystick technology has quickened.

'The industry has really moved forward the past two or three years,' says **Greg Stearns**, CEO of CH Products. 'Consumers are saying three things: First, "we want functionality." Second, "we want realism." And third, "we want programmability." To that end CH Products, ThrustMaster, Logitech, and SunCom, the leading PC joystick manufacturers, have all been serving up ever more realistic looking sticks and throttles (and foot pedal rudders) with more and more user definable buttons attached to them.'

'What we have done is tried to look at the needs [of the consumer] from a realistic point of view,' maintains



From left to right: Mad Catz's analogue steering wheel controller for the PlayStation, for use with any of the machine's NegCon-compatible titles (such as *Ridge Racer*); Konami's light gun, used in games such as *Lethal Enforcers*; the rare Arcadia console's control stick, based around that of the Intellivision; Sega's Japanese Saturn joypad

From left to right: Atari's trackball device, the precursor to the mouse, was used to control crosshair sights in *Missile Command*; *Super Pong*, Atari's home version of its ground-breaking coin-op, was an early exponent of analogue 'paddle' controllers; Sega's mouse device for the Saturn; a ColecoVision-compatible trackball



Stearns, 'and that gives us the joystick, the throttle, and the rudder pedal. You may say "But that's an aviation point of view," and to a certain extent you'd be right, but if you look at how you can control a game, there are only a couple of ways to do it. Until you start having speech activated games, you're going to be stuck doing things with your hands and feet.'

'So, we think that's the ultimate system right now: a controller for the hands, translation: a joystick and throttle; with a foot controller, translation: a pedal.'

Stearns is right, of course. It's worth realising that the military and aeronautic industries have spent many years and many billions of dollars working out how complicated machinery can be best controlled by human bodies. They came up with the joystick/pedal system - so why shouldn't the game industry copy the experts?

Still, other specialised peripherals have evolved. In 1993, Sports Sciences released the Pro Swing, a laser golf club that works with Access Software's popular *Links* golf games. In the beginning of 1994, ThrustMaster released the Formula 1, a steering wheel and foot pedals for driving simulations. Last year ThrustMaster also released the Wizard, a peripheral for playing computer pinball.

You can even buy digital, Nintendo style game pads for personal computers. The Gravis Game Pad, one of the first and probably the best PC game pads, has enjoyed steady sales for several years. As companies like Capcom, Sega, and Williams port arcade games to PCs, these controllers will see even faster sales.

As more and more powerful computers have become prevalent in the home, and the 32bit videogame era has replaced the old 16bit consoles, the pace of joystick innovation has increased on several fronts, particularly over the past 24 months. It had to. While standard digital joysticks are fine for side scrollers, and analogue sticks are great for traditional flight sims, new paradigms of gameplay are starting to emerge. Paradigms previously held back, perhaps, by the lack of appropriate control mechanisms. What good is it to have a 3D world if you have to explore it with a 2D controller? And increasingly, designers are starting to question the point of a hyper realistic driving sim if you can only see and hear - but not feel - the action. Even for traditional games, there is always a new step that can be taken in control.

When creating a new mechanism of control, the old chicken egg catch 22 is that no one wants to develop for a new controller until it has a substantial installed base of

users, which it won't gain, of course, until there are some killer games which take advantage of it.

Surprisingly, the best hope of defeating this vicious circle lies with a company perhaps known more for co-opting others' technology than for creating its own - Microsoft. The DirectControl API in the game development SDK for Windows 95 lends itself to the support of innovative control mechanisms. The importance of this really cannot be overstated. With Microsoft providing the driver for new controllers, a programming hassle is eliminated, and a potential installed base of more than 10 million Windows 95 owners is handed to joystick developers on a plate. With the possible exception of providing a standard for 3D graphics acceleration, the enabling of novel control mechanisms is one of the best features of Windows 95, and one for which Microsoft deserves serious credit.

Another reason that Microsoft is especially eager to talk about joystick innovations these days is because now it has one, too - the SideWinder 3D Pro. This new stick uses an optical technology Microsoft says provides faster and more dependable game control.

Microsoft has removed the gears, resistors, and potentiometers (think of them as volume knobs) used by ThrustMaster and CH Products, and replaced them with a light emitting diode (LED) optical system. Tiny photosensors, placed in the base of the SideWinder 3D Pro, track the position of an LED on the bottom of the joystick and translates these movements into electronic impulses. Although similar to the way a mouse works, the method is a unique, patented design. According to Microsoft, this optical system is both faster and more dependable than potentiometers, while enabling it faux analogue or digital functionality in one stick - without the processor overhead or limited number of buttons of a true analogue stick.

In atypical Microsoft style, the designers of the SideWinder 3D Pro have also packed it with an unending list of features, some of which are impressively innovative. The stick twists as well as swivels, enabling it to perform some of the functions of foot pedal systems like the ThrustMaster Rudder System. It also has a lever that works like a throttle.

Although the SideWinder's simple lever cannot perform half the functions provided by sophisticated throttles manufactured by ThrustMaster and CH Products, and the twisting motion cannot equal the fine sensitivity of true rudder pedals, it's a good start. Additionally, it only costs

Coming soon...



The joystick pictured above is a prototype from Immersion Corporation for a force feedback joystick. At least one major PC joystick manufacturer plans to have a joystick based on Immersion's force feedback technology on shelves by the end of 1996. Even Sony, Sega and Nintendo are considering licensing deals, although it will be a while probably no sooner than 1997 before we see force feedback based peripherals for console systems. Microsoft is also extremely interested in the technology and will probably be incorporating drivers for the device into the DirectControl API for Windows 95.

Edge spoke to several game developers to gauge their enthusiasm for this new technology. According to Thatcher Ulrich, vice president of software at CyberGear, I think it's great stuff. It adds a whole dimension of tactile feedback which we really haven't had before except in some arcade games.

Shiny Entertainment's David Perry is worried

From left to right: the seminal ColecoVision joystick was lauded for its comprehensiveness, but it proved uncomfortable compared to Atari's more simplistic VCS variety; Sears' classic paddle controller; Mattel's Intellivision controller, whose design paved the way for joypads as they are known today; Atari's paddle controller for its VCS console



Continued next page

Continued



From left to right: the SNES's groundbreaking joypad, the first device to introduce the concept of extra 'shoulder' buttons; the NES's joypad – clean, simple and toy-like; Panasonic's feeble 3DO controller, a device that many found too stiff and awkward for prolonged use; Namco's NegCon, an analogue controller operated by twisting it

►Continued

about price, however. I think it's great and I'm all for it. I'll back it 100%. But the question is, will people buy it? People will not pay \$150 for a joystick. It's not that they shouldn't, but they won't – not in a million years.'

Randy Breen, executive producer at Electronic Arts, sees the stick bringing more people into games. 'There are a lot of people who [find games] too difficult and they give up. If, however, they have some other sensation that allows them to control the car more effectively it's going to make the game more enjoyable for more people.'

Anyone interested in getting the force feedback API for Immersion's joystick should call Immersion directly in the US on 001 800 893 1160.

about 25% of a full ThrustMaster or CH Products setup with joystick, throttle, and pedals.

Meanwhile, Sega is releasing an analogue control stick for its struggling Saturn console. Even third parties, like Mad Catz, with its PlayStation steering wheel, or Namco, with its bizarre twisting NegCon, are getting into the analogue act.

On the PC, Advanced Gravis is taking its PC gamepad technology to the next level with its Gravis Interface Protocol (GrIP). The system looks like an L-shaped multitap, with six ports on it – two being pass through analogue ports (for traditional PC joysticks) and the remaining four for custom Gravis pads. The GrIP is a fully digital interface which enables four players to compete simultaneously on a PC, using eight button pads. Although the GrIP sounds deceptively unimpressive to console gamers (who have long since been accustomed to classic four player gameplay with the likes of *Super Bomberman* on the SNES) this new joypad is revolutionary for the PC, and should help usher in a new era of multiplayer PC games.

The most impressive steps toward analogue control on a console system, however, have come from Nintendo, for its forthcoming Nintendo 64. Indeed, it is Nintendo 64's sophisticated controller that excites Nintendo President Hiroshi Yamauchi most about his new baby. At a speech he gave after unveiling Nintendo 64, Yamauchi told the press that 'If you [the press] think this is just another controller, you don't know anything about videogames.' Serious stuff.

One of the things that makes the Nintendo 64's 'batarang' shaped controller so special is that it has both

conventional device Nintendo invented. Many people tell me it's kind of common sense to use.' Indeed, a whole generation of gamers would be lost without it.

'This is the Famicom position – SNES position – using the crosshair,' Takeda explains as he holds the controller by the outside handles. He goes on to hold the controller by the left and middle handle and then by the right and middle handle. 'You can also hold it using the left position and using the right position. Each way gives you a different kind of controller, so we will probably [explain which controller position to use] in each game,' he says.

Typical of Nintendo's tight lipped security, Mr Takeda refuses to reveal much about the inner workings of the new controller. He admits, however, that the centre joystick is not really analogue by the strictest definition of the term, but that it has been engineered to emulate an analogue joystick. Edge has not yet been able to confirm (no joystick was available for dissection) rumours that the Nintendo 64 'analogue' controller is actually an optical one, like the Microsoft SideWinder.

According to Mr Takeda, R&D3 experimented with several game controllers before settling on a final product. 'We tried many different types [of controllers] and prototypes and we threw them away,' he says. This is not surprising. Along the way to any high tech revolution (and game controller technology is no exception) there are always evolutionary dead ends and products introduced too soon for their own good.

'We tried a motion sensor wristwatch,' explains Mr Takeda. 'We even went so far as to make a prototype and applied for a patent. Everything was good. But players didn't understand the internal mechanism and they had trouble controlling it, so we abandoned it.'

Indeed, the road forward in game control is littered with the wrecks of failures. If the Atari 5200 was the first massive commercial control failure, it was certainly not the last. Sega tried for budget 'VR' appeal with its Activator, a hexagonal device that sat on the floor and (supposedly) sensed body movements (such as punching and kicking), translating them into game commands. In addition to making the user look ridiculous, it was woefully inaccurate and was supported by only a few dedicated titles.

Another glorious failure was the DataGlove, from Mattel. It was another 'VR' controller that certainly looked impressive, but didn't really offer anything more than a regular NES pad (in the way of game control, at least), proving to be simply a cumbersome, inconsistent novelty.

The most impressive steps toward analogue control on a console have come from Nintendo

analogue and digital functions. This three handled controller has a traditional Nintendo D pad over the left handle and a thumb sized analogue stick over the centre.

'There are three types of directional devices on this controller,' says Nintendo's **Genyo Takeda**, whose R&D3 team created the device. 'One is a cross key. It's the



From left to right: Atari's keyboard device for its VCS (used to operate the machine's BASIC programming cartridge); the dreadful Jaguar pad from the same company, Nintendo's Virtual Boy controller (whose weight is considerable due to its housing of four AA batteries which power the entire unit); Microsoft's SideWinder stick for the PC

From left to right: Sega's Saturn joypad, redesigned and recoloured for the western market; the ThrustMaster joystick, compatible with PC setups; the button-laden throttle unit from the same manufacturer; the first home controller, an analogue, twisable device, introduced with the Magnavox Odyssey console



Years later, however, the data glove concept refuses to die. 'We've taken a look at a data glove,' admits CH Products' Stearns, 'but it's so expensive that until the price comes down, it just doesn't make a lot of sense.'

Perhaps a more damaging control failure was the CyberMan, from LogiTech. Although it was nominally a six degrees of freedom controller (a device capable of controlling objects in real 3D space - up and down, as well as north, east, south, and west) it was expensive, poorly made, and largely unsupported. At the Computer Game Developers' Conference in March, 1994, LogiTech literally could not give them away.

The failure of the CyberMan probably set the adoption of 3D control in the guise of six degrees of freedom joysticks back several years. 'A lot of people spent a lot of money [on the CyberMan],' says Stearns. 'They got screwed and they're kind of saying, "I'll never do that again."

A six degree of freedom joystick is a good idea,' Stearns continues, 'but until you can refine it a little bit better and then convince the public that it's something it should have, it will never really sell. So the next one that comes out on the market has to be very well thought out and it has to work really well,' he concludes.

So, true 3D control remains elusive, which is somewhat disappointing, considering that back at the dawn of videogaming the Fairchild Channel F (an obscure Atari 2600 precursor) had a controller that - technically, at least - offered six degrees of freedom. (There were, however, no games that took advantage of this ability; but this was not a surprise, since its graphic ability paled even next to the 2600).

Still, the gaming community is getting closer. The PlayStation controller, impressive because of its ergonomics alone, has a set of four shoulder buttons arranged in a two by two matrix, which enables it some rudimentary 3D control when paired with the D pad. The diamond shape of the standard buttons could be easily used as another D pad for 3D control as well.

But more than any other advance in controller technology, force feedback joysticks promise to open up whole new ways of experiencing a video or computer game. 'It's basically a joystick that is an input device, like a traditional joystick, but also an output device - the computer can command forces to the joystick handle and create a whole variety of different sensations,' explains Louis Rosenburg, president of Immersion Corp and designer of Immersion's force feedback technology.

From left to right: Sony's PlayStation joypad, whose development period took it through no less than eight mocked-up designs; Sega's analogue flight stick for the Saturn; a PC-compatible stick from prolific suppliers Gravis; an infrared cordless stick, looking more like something out of Star Trek than a videogaming accessory

Analogue versus digital

Analogue joysticks are controllers with continuous and varying 'resistive value'. The joystick can detect degrees of movement, as opposed to the simple on/off of a digital joypad. In terms of videogames, this translates to a situation in which the further you push an analogue stick, the faster your character moves or the more sharply your car turns.

A car steering wheel is a good example of an analogue input device. To merge into another traffic lane you turn the wheel slightly. To go around a corner requires a more severe turn. To make a U-turn the wheel must be forced to its limit. Inside the analogue joystick a potentiometer (a variable resistor, like a volume knob) changes the amount of current running from the stick to the computer, enabling the computer to know exactly how far and in what direction the joystick has been moved. These signals are then translated into game instructions.

Don't assume analogue technology is necessarily complex, or indeed new, however. The old 'paddle controllers', which drove *Pong* and similar games, are also analogue devices, but with the ability to control motion along only one axis.

Analogue joysticks have been part of the PC scene for ten or 15 years, and they really haven't changed much in that time, says Scott Schulte, a product planner working in the Advanced Consumer Devices division of Microsoft. They had two buttons, now they have four buttons; but the technology inside is basically the same.

The disadvantages of analogue joysticks unfortunately outweigh many of their advantages over digital controllers. Because they have such a huge number of possible positions, up to 17% of the CPU's processor power must be dedicated to continuously checking the state of the joystick.

In contrast, digital game controllers (such as the Saturn's and PlayStation's) feature the all or nothing language of binary notation. You cannot make game characters run faster by squeezing harder; they either move to the left or they don't. Clever coding and the detection of the length of a button press, can give greater control, but the limitations are still huge.

Digital joysticks and joypads work the same way as modern calculator buttons or computer keyboards. On a printed circuit board in the casing there is a disconnected circuit. When the joystick is pushed in a certain direction a small round pad made of conductive material presses down, completing the circuit and sending a signal back to the CPU. This is also the way a joystick's fire buttons work.

The chief advantage of digital controllers is that they are less expensive to build and more sturdy than analogue joysticks. Also, at least on the PC, digital joysticks don't suck processor power. Instead, the digital stick updates the CPU on its position every eight milliseconds, so more processor cycles can be devoted to the business of running the game itself.

A third control technology has not yet been utilised in many game control devices, but this is likely to change over the next two years. The mouse (and some trackballs) uses an optical system. When the mouse ball moves, it spins one or two drums. Inside these are LEDs, the light from which shines through holes in the drum to a sensor which then returns data to the computer. Based on the speed and direction in which the drum spins, the cursor moves appropriately on the screen, enabling extremely precise control.

The N64 pad is purported to employ similar technology, and it has set an instant trend. Saturn owners will get a similarly styled controller bundled with *NIGHTS*, and a PlayStation equivalent is inevitable.



An analogue stick takes centre stage on the Nintendo 64's controller (left); Sega's reply for the Saturn (Japanese version, centre, western version, right) uses a more pad-like analogue device





Continued



From left to right: the unique, pistol-like Super Action joystick controller, designed for use with the Colecovision; the F-16 Flight Stick from CH; SNK's robust, near coin-op-quality joystick for the original model of its high-spec Neo Geo console (which was accompanied by near coin-op-quality prices); the twee NES Wizard controller

How does it work? 'There are actuators [mechanical devices] on each of the axes,' explains Rosenburg, 'so the computer can independently command a force to the X or the Y axis. It's much more sophisticated than a traditional joystick. It has its own microprocessors, actuators, power, and electronics to drive the actuators. Essentially, it's a robot. Indeed, the best way to think of it is as a robot that looks like a joystick that sits on your desk,' he adds. Exos and some others are also working on force feedback devices, but at press time, only Immersion has inked firm production deals with leading manufacturers.

To understand how it feels to use this kind of controller, imagine you're moving a dot around a TV screen (as in one of the simple demos Immersion has developed to show off the technology). Also imagine that on the screen are several 'springs' (triangles touching end to end). As you move the dot against the spring and press 'down' you begin to feel resistance from the stick, which

for the ball. Even with extremely simple line graphics, force feedback *Pong* beats anything the 32bit systems can offer on their own - in terms of true immersion and a feeling of realism.

'Basically the simplest game in the world becomes very, very interesting when you add force feedback to it,' offers Rosenburg. This could be the understatement of the year. Certainly, the effect is much less impressive when outlined on paper than actually experienced. Faced with the term 'active feedback', most people instantly think of arcade controllers (such as *Daytona*'s steering wheel) that offer resistance to turns and shake when you crash, or guns that stutter with each shot. True force feedback can handle those tasks easily, but it provides much more than that.

'The way current joysticks work in the arcade, they're not really doing modelling of sensations, they're just sending out this canned routine that the player feels,' says Rosenburg. (For example, the *Daytona* player gets the same 'jerking' every time he hits a wall, no matter how fast he's going or what kind of wall it is.)

'What we can do is really model the dynamics of what it should feel like when a car bumps into a wall, or when a ball hits into a paddle,' he adds. 'Our device has far higher performance. It's sort of like the difference between the fidelity of a Sound Blaster - where you can create music as opposed to an old PC speaker that just makes buzzes and beeps. We can simulate the real physical dynamics of anything: gravity, a texture, a spring, a rubber band. We can simulate mathematically what those things are like so it will feel real, exactly like a real spring or rubber band or whatever,' he concludes.

CH Products' CEO Greg Stearns sees active force feedback as the next level in computer and videogames. 'Right now we amaze the eyes and the ears. Now, with force feedback, we can add one more thing to the list of "feel goods".'

Not only will this technology enhance existing games enabling you to feel the road conditions in *Sega Rally* or *Ridge Racer*, or turbulence and G forces in a flight sim, it should open the way for entirely new types of games, where tactile feedback replaces graphics as the premium experience delivery mechanism. Gamers can then look forward to a true revolution in gaming.

And then the next step?

'You don't have any smell things out there,' ponders Stearns. 'Maybe there will be software you can smell. I doubt it, but...'



More than any other advance, force-feedback joysticks promise to open up whole new ways of experiencing a videogame

changes in a realistic way as you push further down on the spring. The force also changes depending on the type of spring. Another demo puts a 'puddle' (a blue circle) on the screen. Moving the dot around most of the screen feels exactly as you would expect, like moving a mouse pointer. But when the dot is in the puddle, moving the stick produces a sensation identical to that of stirring paint. It really has to be felt to be believed.

In another demo, players control a paddle, à la *Pong*, with one key difference - the paddle is made of 'rubber' and the ball bounces from it. The further it bounces, the more reactive force you feel when it hits. The combination of visual cues with physical ones makes the experience more truly immersive than any advance in graphics or processor technology *Edge* has seen. Playing two player *Pong* with force feedback joysticks enables players to go out and physically wrestle with an opponent



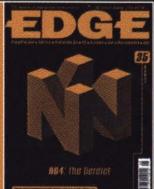
From left to right: a typical Wico 9-pin-DIN-plug joystick, one of a number of the company's range made popular during the Commodore 64's heyday in the mid-eighties; SunCom's Slik Stick; Fairchild's distinctive-looking Video Command device; Atari's attempt to redesign its popular VCS joystick (see page 51), which most gamers deemed a failure



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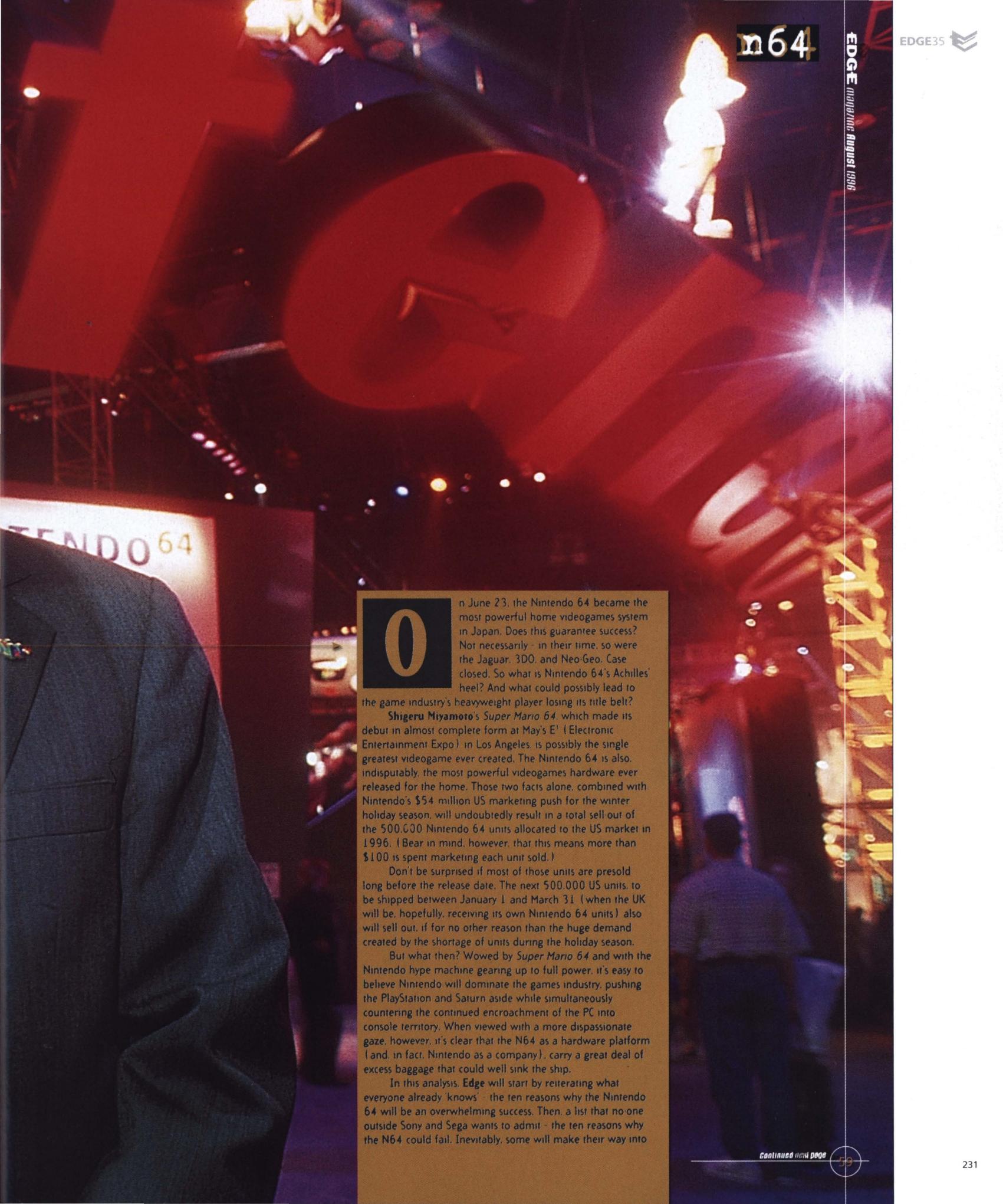
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Is it just fortunate coincidence that there are precisely ten reasons why Nintendo 64 will succeed, and ten reasons why Nintendo 64 could fail? Or is there a more journalistic spin going on in this examination of Nintendo's future? No matter. Conclusion: N64 will be huge. (Warning: hugeness cannot be guaranteed.)

Nintendo's day of reckoning

As Japan sells out of N64 units and the rest of the world hangs in pre-release limbo, Edge lifts the lid on Nintendo's killer toy. Indomitable powerhouse or Pandora's box?



On June 23, the Nintendo 64 became the most powerful home videogames system in Japan. Does this guarantee success? Not necessarily - in their time, so were the Jaguar, 3DO, and Neo-Geo. Case closed. So what is Nintendo 64's Achilles' heel? And what could possibly lead to the game industry's heavyweight player losing its title belt?

Shigeru Miyamoto's *Super Mario 64*, which made its debut in almost complete form at May's E3 (Electronic Entertainment Expo) in Los Angeles, is possibly the single greatest videogame ever created. The Nintendo 64 is also, indisputably, the most powerful videogames hardware ever released for the home. Those two facts alone, combined with Nintendo's \$54 million US marketing push for the winter holiday season, will undoubtedly result in a total sell-out of the 500,000 Nintendo 64 units allocated to the US market in 1996. (Bear in mind, however, that this means more than \$100 is spent marketing each unit sold.)

Don't be surprised if most of those units are presold long before the release date. The next 500,000 US units, to be shipped between January 1 and March 31 (when the UK will be, hopefully, receiving its own Nintendo 64 units) also will sell out, if for no other reason than the huge demand created by the shortage of units during the holiday season.

But what then? Wowed by *Super Mario 64* and with the Nintendo hype machine gearing up to full power, it's easy to believe Nintendo will dominate the games industry, pushing the PlayStation and Saturn aside while simultaneously countering the continued encroachment of the PC into console territory. When viewed with a more dispassionate gaze, however, it's clear that the N64 as a hardware platform (and, in fact, Nintendo as a company), carry a great deal of excess baggage that could well sink the ship.

In this analysis, *Edge* will start by reiterating what everyone already 'knows' - the ten reasons why the Nintendo 64 will be an overwhelming success. Then, a list that no-one outside Sony and Sega wants to admit - the ten reasons why the N64 could fail. Inevitably, some will make their way into

Continued

both lists, such as the 'Dream Team' analogy (number six in the reasons why Nintendo will succeed and number six in the reasons why Nintendo could fail). And certainly, most will cause controversy...

Ten reasons why Nintendo 64 will succeed

1 Super Mario 64

Without question, the Nintendo 64's *raison d'être*. The fruit of over two years of development time. *SM64* has evolved into an epic manifestation of 3D game design. Instead of simply implementing the established *Mario* play elements in a forced, pseudo 3D perspective, Nintendo's in house designers, under the direction of Shigeru Miyamoto, have truly broken the mould. Building an unprecedented level of freedom in *Mario*'s world, it's clear that *Mario* has been designed to be all things, to all people. Initially open ended with little restrictive game framework to adhere to, *SM64* immerses the player in a world that's open for exploration and that serves as a playpen to acclimate the player to the 3D environment. Then, gradually, as the levels open up, the game begins to reveal its true scope. There are jaw dropping technical accomplishments, fiendish puzzles, oddball challenges

The fruit of over two years of development time, *Super Mario 64* has evolved into an epic manifestation of 3D game design

and heaps of Japanese tinged humour. Whether *Mario 64* is indeed the world's greatest videogame isn't yet clear, but it's certainly a staggering achievement. Without it, N64s would still be sitting on Japanese shelves.

2 Shigeru Miyamoto

For Nintendo, it's always been about Shigeru Miyamoto. Hired by Nintendo Chairman Hiroshi Yamauchi in 1977 as the then playing card and toy company's first staff artist, he created *Mario* for the original *Donkey Kong* coin op and

never looked back. He is arguably the greatest videogame designer in the world (Sega purists might argue that Yu Suzuki and Yuji Naka are of equal brilliance), and his games have sold more than 100 million units worldwide. It was Miyamoto san's incredible launch trio of *Super Mario World*, *F Zero* and *PilotWings* that assured the success of the 16bit Super Famicom in Japan almost six years ago. With Miyamoto and the rest of Nintendo's in house teams developing exclusively for N64, the only way to get the absolute cream of software titles is to buy 64bit.

3 Serious business muscle: Mr Yamauchi, \$4 billion cash in the bank, and lots of experience

According to conservative estimates, Nintendo has around \$4 billion in the bank. Which translates to a lot of marketing muscle. In the US it'll be spending \$100 million marketing dollars for every N64 system shipped in 1996 - between television, print, and co marketing campaigns with cable channel Nickelodeon, Kellogg's, and Blockbuster Video. The Nintendo 64 is expected to permeate the consciousness of Nintendo's main targets - parents. The company plans to manufacture five million N64 units by March '97.

4 That 'Nintendo' badge...

In the mid eighties, when Nintendo had a near-monopoly on the 8bit console market, the term 'Nintendo' became almost generic. It wasn't 'little Johnny's playing a videogame', but 'little Johnny's playing Nintendo'.

Even now, among non gameplaying adults, the terms videogame and Nintendo are synonymous. Since Nintendo is aiming its high tech system at younger children, parents will be doing most of the buying, and if the only videogame company they know is Nintendo, a purchase decision will essentially be impulsive, especially considering the marketing blitz outlined above.

Beyond parents, though, there is a whole generation of Americans who grew up with Nintendo's 8 and 16bit products as their game platform of choice. Estimates of the number of consumers who have been waiting for Nintendo 64 to ship before making the jump to next generation hardware run into the millions. Twenty million people bought 16bit SNESes and then proceeded to spend the next four or five years arguing with Mega Drive owners about



He's special, and doesn't Nintendo know it. As the Kyoto company's most treasured intellectual property, Mario now stars in possibly the greatest videogame ever created



By the early nineties, one in three US households owned an 8bit Nintendo. But in wake of the infiltration of Sega and Sony it's debatable just how much clout the Nintendo 64 brand will carry in the massmarket

which was better. If Nintendo can use its valuable name to convince even 10% of those 16bit owners to go with the N64, it will have beaten Sony's and Sega's combined efforts.

5 64bit versus 32bit

The Nintendo 64 is clearly the superior hardware when compared directly to Sega's Saturn or Sony's PlayStation. The true 64bit RISC CPU runs at 93.75MHz (compare this to the twin 32bit Hitachi RISC CPUs in the Saturn, which run at only 28MHz, or the PlayStation's 33MHz R3000A RISC CPU), and the console sports hardware based z-buffering, trilinear mip map interpolation, perspective-correct texture mapping and anti-aliasing.

According to a Nintendo spokesperson, the console sports the power of ten Intel Pentium chips, and from a purely technical point of view, *Super Mario 64* and *PilotWings 64* look far superior to anything on a 32bit console or even a Pentium based PC with a 3D graphics accelerator - the video technology of the system is nothing short of amazing. It handles incredibly sharp graphics and features little of the polygon seam show through or clipping and culling glitches that are commonplace on both the Saturn and PlayStation.

Essentially, consumers who wish to own the best hardware simply must own a Nintendo 64. And even though gameplay will shine through in the end, graphics have an important role to play. If they didn't, there would never have been a reason to upgrade from 8 to 16bit.

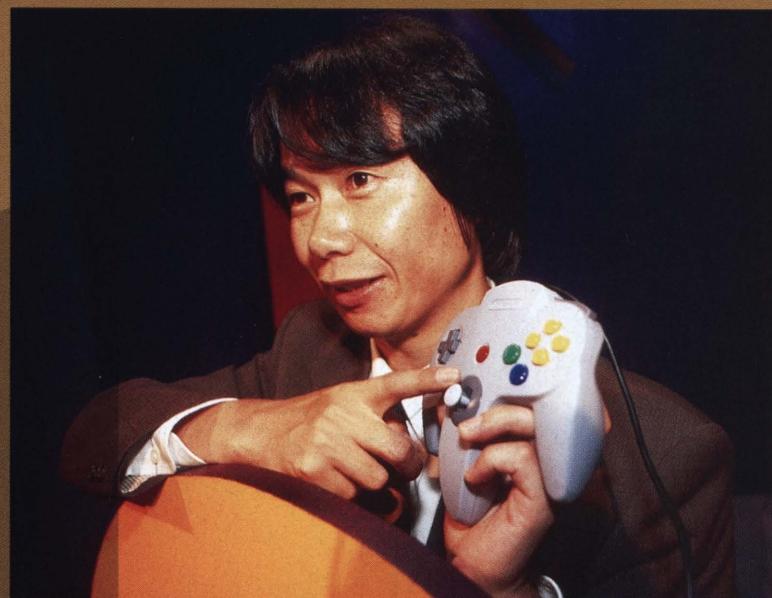
6 Nintendo's 'Dream Team' policy

By confining the number of thirdparty licensees to limited 'Dream Team' members, and keeping the majority of development in-house, or in second party arrangements with quality development studios, Nintendo hopes to assure that every game released on the system will be a first class title. Nintendo's high standards of quality control are legendary, and the company is definitely going for quality rather than quantity with the software for Nintendo 64. A mass of mediocre titles sunk the Atari 2600 (and - cynics will say - may be sinking the PlayStation now), and Nintendo has no intention of letting the same fate befall its 64bit baby.

What many sceptics don't realise, though, is that the 'Dream Team' has essentially been a marketing tool used outside of Japan. In its domestic market, Nintendo has secretly been courting its own established 'Dream Team' comprising companies such as Capcom, Namco and Konami, who consistently delivered quality software for Nintendo's 8 and 16bit machines. In July, NCL will announce 20 Japanese developed N64 titles.

7 A revolutionary controller

The analogue joystick is a quantum leap beyond the eight-way, digital D pad of old, and is able to deliver play



Two reasons why the Nintendo 64 will succeed: Shigeru Miyamoto, creator of the *Mario* series, and the N64 analogue joypad which enriches games with its subtle controls

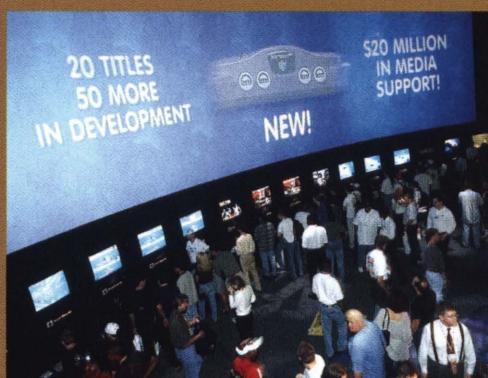
experiences that were never previously available on a home console system. And although Sega and Sony also have analogue offerings in the works, only Nintendo's is native - planned for and expected by every design team.

Expect the odd game on the Saturn or PlayStation to support analogue control, but the Nintendo 64 is where the analogue stick will truly come into its element.

8 Cartridges have many advantages over CDs

On CD based consoles, the time between a machine being switched on to the start of the game can take a minute or more (and triple or quadruple that for PCs and Macs). With a cart based system, games can be played immediately (in theory), and there are no annoying load times between levels. While this isn't a huge

The Nintendo 64
is where the analogue
joystick will truly come
into its element

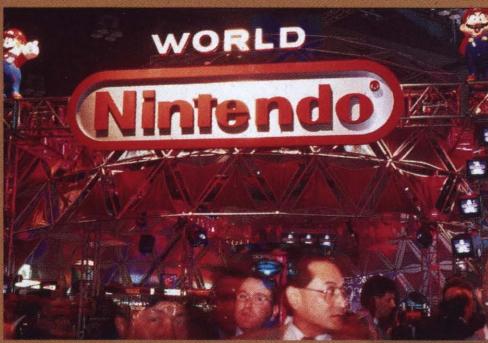


NCL's *Wave Race 64* was one of the titles to make excellent use of the N64's analogue controller

E' was a testing time for Nintendo. In-house Japanese projects under the direction of Miyamoto (such as *Wave Race 64*, left) played well, while the full suite of 'second party' projects (right) received a rather mixed reception

Continued next page

Continued



E' belonged to Nintendo, but some analysts think it has already lost far too much market share to compete

factor, and hasn't hampered the success of the PlayStation or Saturn, it should lend to a feeling that the N64 is the faster system. Carts are also more durable.

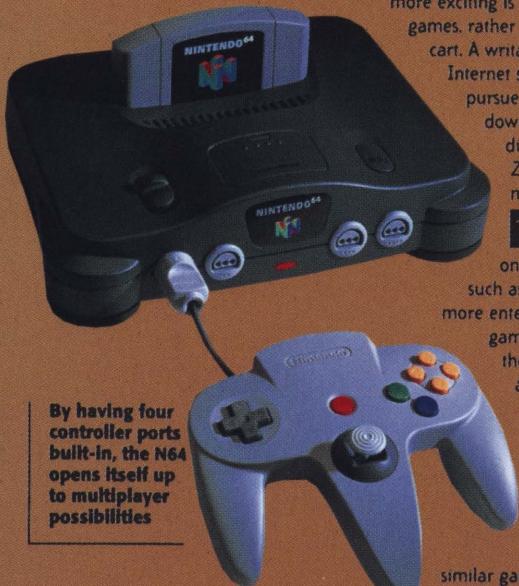
Most significantly, however, is the hardware saving that supporting cartridges gives Nintendo. Without the need for either a CD-ROM player or a separate RAM cache for data to be loaded into, Nintendo is saving itself at least \$50 on a manufacturing level, translating to at least \$100 off the street price. Thus, it's not unreasonable to regard the N64 as a \$250 console without a CD-ROM drive, and the PlayStation as a \$100 console with a CD-ROM drive.

9 DD64 promises unique possibilities

The writable DD (disk drive) 64 is one of the most exciting reasons to support the Nintendo 64. By enabling gamers to store huge amounts of save-game data, custom characters and custom worlds become a reality, and even more exciting is the prospect of update disks for games, rather than having to buy a whole new cart. A writable disk also will be key for any Internet strategy that Nintendo decides to pursue, enabling software to be downloaded and written directly onto disc. It's no secret either that *Zelda 64* is planned for the DD64, making it a must-buy.

10 Four controller ports

Everyone who has played one agrees - four-player games, such as *Super Bomberman*, are far more entertaining than one or two-player games. By designing four ports into the machine, Nintendo has clearly acknowledged this. With extra controllers being sold at an inexpensive price (\$30), expect to see many games take advantage of this, like *Super Mario Kart*, *Wayne Gretzky Hockey*, and *NBA Hang Time*. Developers seeking to create similar games for the PlayStation or Saturn will be hindered by the need to provide an expensive adaptor, so this should add yet another edge for enhanced gameplay on the Nintendo 64.



By having four controller ports built-in, the N64 opens itself up to multiplayer possibilities

Ten reasons why Nintendo 64 could fail

While the Nintendo 64 will certainly be a runaway success among hard-core gamers, they will not, ultimately, determine

the fate of a system. Rather, it's the millions of casual gamers who will, in the end, decide who wins the next-generation console wars.

Chief among these casual purchasers are the gift buyers - parents, aunts and uncles - who buy systems for those who can't afford the games themselves (ie kids). There are many reasons why they may eschew the Nintendo 64 for a Saturn or PlayStation. Chief among them are the high costs of the system and its games, and the fact that there will be little third-party software on the shelves - traditionally an easy benchmark for judging the success of a platform. If the N64 doesn't live up to Nintendo's own expectations, it is likely to be for the reasons outlined below.

1 It's just too late

The Nintendo 64 has suffered horrific delays. Twice. Originally scheduled for a 1995 release, the launch was postponed until April of this year. Then, it was delayed again.

These delays have benefited Nintendo's competition. First, it has enabled them to sell more hardware units at a higher price (if only to those gamers sick of waiting for the Nintendo 64). Second, the extra year's head start now enables Sega and Sony to compete with second- and even third-generation software, as opposed to merely their opening salvos. Many observers would argue that this has fudged the distinction between 32 and 64-bit, robbing Nintendo of its advantage.

There is a historical precedent for those who would predict this scenario: in the 16-bit era, Nintendo's delay in bringing the SNES to US shores enabled Sega to gain a foothold that ended up costing Nintendo just over half of the market share - despite the SNES's obvious technical superiority over the Mega Drive (aka Genesis in the States).

This time, however, Nintendo faces two tough competitors, who will have had more than a year's head start by the US launch date of September 30. Sega expects to sell one million units in the US by the end of 1996. Sony says it'll do better than that. At best, Nintendo will sell 500,000 into the US market. Any dreams of the videogaming equivalent of an easy 'three-day war' are based on naivete.

By January 1, Sony and Sega will have reached the critical mass of hardware sales needed for long-term success, and Nintendo will only be halfway there. And three-way races in the videogames business always seem to boil down to two strong competitors and one pathetic also-ran.

Nintendo's stringent quality-control mechanisms should also ensure that most software ships late, too. Hiroshi Yamauchi has shown no hesitation in postponing the release of games at the whims of his developers. This can only lead to even further delays.

2 It's too expensive

When the Saturn cost \$399 and the PlayStation \$299, \$249 looked like a great price-point. But with the Saturn and PlayStation now less than \$200 (and £200 in the UK), Nintendo suddenly finds itself in the uncomfortable position of being the most expensive console on the block. And while Sega and Sony can include a game with the console at a cost to themselves of about \$3, for Nintendo to do the same would cost about ten times that, in terms of cost of goods. A Nintendo 64 plus *Super Mario 64* will weigh in at about \$320 in the US - a hefty price point considering Nintendo expects parents to buy this system for their children as a toy.

Most Nintendo 64 carts will retail for between \$69.95 and \$79.95 (most likely £50 to £70 in the UK). Thanks to the high cost of silicon, Nintendo simply cannot compete on price for games, especially in the (albeit unlikely) event that a price war breaks out. The high cart price will not sit well with the value-conscious.



Nintendo 64 cartridges like *PilotWings 64* (above) might be a similar physical size to SNES carts but at an average ROM size of 64 Mbits (8 megabytes) they represent a frighteningly high outlay for publishers

Also, consider that while Nintendo 64 is the most expensive system, it is being targeted to the lowest age demographic. Parents are probably just as likely to buy a cheaper system with cheaper games, notwithstanding the psychological implication that by being more expensive, the Nintendo 64 is the 'premium' system.

3 The target audience doesn't care about 64bit
Focus groups have revealed that most children under about 12 years of age simply can't tell the difference between 16bit and next-generation titles. They are just as satisfied playing a side-scroller on a SNES as they would be playing *Wave Race 64*.

Couple this with Nintendo's stated intention to continue heavily promoting the SNES and it's not difficult to see that many parents who go into the store with the idea of buying a Nintendo 64 will, in fact, walk out with a SNES - glad of the extra cash still in their pockets.

Older gamers - who will definitely care about the difference between 32 and 64bit - may be far less likely to buy a Nintendo 64 once it is marketed as a 'kid's system'. Sega and Sony will surely exploit this in their own marketing. And, in a 'which-is-cooler?' war that will be fought largely on the playgrounds of schools, game quality may take second place to perceived hipness. Sure, the hard-core gamers will still buy Nintendo 64, but - as stated earlier - the hard-core gamer makes up only a small fraction of the market. Indeed, most people play games like *StarFox* or *Mario Kart* despite the cute characters, not because of them.

4 One trick pony?
Super Mario 64 is undeniably a landmark in videogaming, destined to redefine interactive entertainment. But it is the fruit of more than two-and-a-half years of development, unlimited development resources, the winning touch of Shigeru Miyamoto, and is built on the most successful videogame character of all time.

There are absolutely no reasonable grounds to assume that any other Nintendo 64 game will match *Super Mario 64*'s level of achievement for a very long time - in fact, NCL chairman Hiroshi Yamauchi recently conceded that if three games came close this year then they would be fortunate. Indeed, many thirdparty publishers with Nintendo 64 games in development were scrapping half-completed projects and heading 'back to the drawing board' in the wake of *Mario's 64bit debut at E3*.

Aside from *PilotWings 64* (which also benefits greatly from the nostalgia factor) and - arguably - *Wave Race 64*

and *Shadows of the Empire* (which doesn't play as good as it looks), much of Nintendo 64's other software, like *Ultimate Doom* and *Killer Instinct 2*, doesn't offer significant enough improvement over the 32bit games of Sega and Sony.

As a by-product of Nintendo's quality-over-quantity software strategy, there will be far fewer games available for the Nintendo 64 than there will be for a Saturn or PlayStation, which had more games on shelves last Christmas than Nintendo will have in development for the N64 by the end of 1997. And because there will be fewer games available, the system will look far less appealing to parents when they walk into the store, since one of the main ways a system is judged by casual purchasers, like parents, is by the number of titles available, not the quality of those titles.

5 Thirdparty developers hate cartridges

Compare cartridges to CDs: carts cost between £20 and £30 to manufacture. CDs cost less than £3. Carts can take up to three months to make in volume: a batch of CDs can be turned around in days.

The consequence?

Publishing games on cartridges can be a huge risk, requiring both an enormous up-front investment of cash, and the gamble of having to predict what the market will be demanding several months ahead of time. Underestimating means lost sales; overestimating means a vast amount of money tied up in almost worthless inventory.

Becoming familiar with the advantages of publishing on CD for the PC, PlayStation and Saturn, it's easy to see why publishers will not be itching to return to cartridges. They simply can't hold as much data as CDs.

Although most games today do not even come close to using the full CD in any meaningful way, developers are now familiar with the freedom that CDs offer, and many gamers have come to expect FMV cut-scenes as well as Red Book audio soundtracks - both of which require a CD format.

Games such as *Resident Evil*, with many prerendered backgrounds, simply would not fit on a sub-£100 cartridge. Even a simple side-scroller like *Guardian Heroes* has an executable file that's larger than 272 Mbits (34Mb) - around four times the size of the first thirdparty N64 titles.

For good or ill, many developers have invested millions in developing multimedia studios, and (for good or ill) they want to use them, if for no other reason than to justify the expense to their shareholders. Many developers seem convinced that their titles will not sell without a multimedia flash, which just can't be provided on the cartridge format.

Nintendo claims that it can survive without substantial thirdparty support. But that's exactly what Atari said about the Jaguar. A further problem is that some third parties may be scared of Nintendo 'cheating'. In late 1994, Shiny Entertainment's *Earthworm Jim* launched for the SNES on a

Many thirdparty publishers were scrapping half-completed projects and heading 'back to the drawing board' in the wake of *Mario's 64bit debut at E3*



When the N64 finally arrives in the UK next year Sony and Sega will have gained a large share of the market. The US machine (above) stands a better chance

Continued

16Mbit cartridge. Two weeks later, Nintendo's own *Donkey Kong Country* was released on a 32Mbit cart, and sold for \$10 less. 'How the hell are you meant to compete with that?' bemoaned Shiny's Dave Perry. He has a point.

Nintendo controls every aspect of the cart manufacturing process (even to the point of owning the cart ROM manufacturing plant), and it expects to make a profit over and above its licensing fee, at every step of the way. Of course, this vertical integration also gives Nintendo the ability to make its own cartridges as cheaply as possible.

Very few game developers around the world have come close to exploring all the possibilities of 32bit, let alone prepare themselves to start pushing the envelope of 64bit game development.

The skill required to make a great 3D game goes far beyond the skill set needed for a 2D game, in terms of character design, world creation, and gameplay elements.

The camera angle alone can cause a multitude of headaches.

To be fair, this problem faces all game companies as the switch to 3D is attempted, but for the N64 to be a hit, it needs differentiation now, especially since only a few titles will be introduced this year.

Because games need to be written exclusively for the

Nintendo 64, developers will be unable to return development costs across several platforms, a key strategy today, when the number of units sold will pale in comparison to the amount of 16bit software that could be moved just three years ago.

6 'Dream Team', or nightmare?

If asked to put together the dream team of game developers to create the ultimate software line-up, most gamers would include outfits such as SquareSoft, Namco, Konami, Capcom, Psygnosis, and Bullfrog. Certainly, the likes of GameTek, Titus, Acclaim, Spectrum Holobyte - and then such obscure, unproven entities such as Angel Studios - would be near the bottom of Edge's list.

Cynics can easily argue that - with a couple of notable exceptions, like Williams and LucasArts - some members of the 'Dream Team' are companies lacking a proven track record for making great videogames in the cutthroat world of multiformat publishing. Instead of being the cream of the

world gaming industry, they are, in fact, those who see an alliance with Nintendo as a way of either temporarily escaping from market realities, securing an easy ride into mainstream game publishing, or who see Nintendo 64 publishing as a way of getting rich quick.

Despite what Nintendo may have people believe, game creation is not a science and there is no way to guarantee success. Very often, the best games come out of small, obscure developers with little or no track record (take Id's *Doom*, Blizzard's *WarCraft*, Alexei Pajitnov's *Tetris* or anything by Geoff Croxton, for example). Often the best policy is simply to throw enough mud, and hope that some sticks. Indeed, much of Nintendo 64's initial line-up falls far short of what has been promised.

7 The brand loyalty risk

Conventional wisdom states that one of Nintendo's chief advantages is the Nintendo brand. The name Nintendo was synonymous with videogaming itself in the eighties, and is hence a terrific weapon in the videogame wars of the nineties.

There are, however, two problems with this belief. First, Nintendo is going firmly after the 8 to 13-year-old market, at least initially. But there is evidence to show that while gaming remains popular among the players who were 8 to 13 in 1991 when the SNES was introduced (and who are now 13 to 18 themselves), it's entirely possible that this same age group today just isn't as interested in videogames as their big brothers were five years ago. Trends come and go, fashions change overnight. Try selling *Teenage Mutant Ninja Turtles* or *Transformers* on the street today, and witness the lukewarm response.

More pragmatically, Nintendo is counting on brand loyalty and the Mario name to sell systems. But what does an eight-year-old remember about Nintendo? The loyalty to the Nintendo brand is among users 15 years of age and up - the people being targeted extensively (and successfully) by the PlayStation and Saturn, and largely ignored by Nintendo.

8 Sony and Sega

With a maximum of 500,000 units arriving in the US before the end of 1997, plus a marketing budget in excess of \$100 per hardware unit, demand for the Nintendo 64 is certain to outstrip supply. Nintendo will fuel a fire that it simply doesn't have the resources with which to deal. This will likely drive buyers, particularly parents desperate for Christmas presents, into the waiting arms of Sony and Sega (who will have no product shortages). And once one next-generation system is purchased, the likelihood of a second one being purchased drops dramatically, especially if, as in Nintendo's business plan, the parents are doing the shopping.

As they enter the toyshop to buy the console, the Nintendo name will certainly be familiar to mum and dad. But more familiar than that will be the name of the world's number one consumer electronics manufacturer, Sony. And while in most marketing, the focus is always on the PlayStation brand, in-store point of purchase displays (more likely to be seen by gift buyers), the Sony name is always prominently displayed, for just that reason.

When gift buyers walk into a store intending to buy a game system, seeing the trusted Sony name at a lower price-point, combined with a volume of available (and cheaper) games, is bound to impress - perhaps even more than Nintendo's name. This is a form of competition with which Nintendo has never had to deal before, even when squaring off against Sega in the 16bit days. The game industry's 900-pound gorilla may well have just run up against a bigger, more scary monster than even itself.

Despite its initial lacklustre performance in the 32bit race, Sega isn't going anywhere. It plans to spend almost as much as Nintendo throughout 1996 on marketing, and it

Some members of the 'Dream Team' are companies lacking a proven track record for making great videogames



Paradigm Simulation, pioneers of the software technology behind *PilotWings 64*, is one 'Dream Team' member that has proved its worth. Bruce Cardi, VP of marketing (above)

has something that Nintendo has never had - AM2's library of killer coin-ops. When *Virtua Fighter 3* is converted to the Saturn, even with obvious console-version limitations it is still guaranteed to be a massive hit.

Sega can also be relied upon to produce a more innovative marketing campaign that reaches beyond the lowest common denominator of their, up until now, half-baked Saturn strategy. Combine this with a new *Sonic* title on the Saturn and Mega Drive, and *NiGHTS* on the Saturn, and it's clear that Sega isn't planning on taking Nintendo's threat lightly.

And, of course, at present, Sega has the only Internet strategy among the console manufacturers, which could score major points if the market for the \$500 network PC really does exist.

9 DD64: Nintendo's 32X?

In the entire history of console gaming there has never been a peripheral that has sold in significant numbers, and the DD64, which will add at least another \$100 to the cost of the Nintendo 64, is not likely to be an exception, despite the range of features it will offer users. It's not a route I would advise taking, ruefully warns Sega's Tom Kalinske, conscious of 32X's high-profile nose dive onto oblivion.

Indeed, it's possible to argue that no matter how DD64 fares, it's bad news for Nintendo. If it fails to sell in any significant numbers at all, then Nintendo is stuck with cartridges (bad news) and can wave goodbye to any possibility of introducing a competitive online gaming network for Nintendo 64 (bad news). If it sells a reasonable amount of units, it then splits the Nintendo 64 game market down the middle - half the people will want cartridge games, half will want DD64 games. This will lead to confusion, and dilute development resources (bad news). If DD64 sells out and becomes an essential add-on for Nintendo 64 gaming, then the entry level price of Nintendo 64 gaming increases by \$100 to \$350 (bad news).

Additionally, Nintendo's history of not supporting peripherals (its Famicom disk drive failed due to a lack of software) means that even hard-core gamers will want to think twice before they buy.

10 Nintendo is too tightly tied to Japan

One Nintendo subcontractor quipped to Edge that the folks at Nintendo of America are so closely linked to their Japanese HQ they need permission to take a leak. Edge assumes this is a slight exaggeration, but the point is understood.



Zelda 64, destined for the DD64 optical disc drive, should create almost as much mass hysteria as Mario

While all three console manufacturers are closely tied to their Japanese parent companies, none are tied more tightly than Nintendo. While Sega may not always know when it is getting information from Japan, it's generally free to do what it wants with the information once it's in its hands. Sony has even greater freedom, especially since so many SCE Japan executives are now occupying offices at SCE America's Foster City headquarters. The end-result is that Nintendo of America simply cannot manoeuvre in the marketplace as fast as Sony or Sega can.

One Nintendo subcontractor quipped that the folks at Nintendo of America are so closely linked to their Japanese HQ they need permission to take a leak

In conclusion, Edge believes the Nintendo 64 will be a huge success, but that success is by no means guaranteed. Without *Super Mario 64*, Nintendo would be in serious trouble. But with *Super Mario 64*, it's hard to see how it can fail. Who wouldn't buy a system to play just one truly incredible game?



Kemco is one Japanese company that has started to reveal its internal development efforts (*Blade and Barrel*, above)

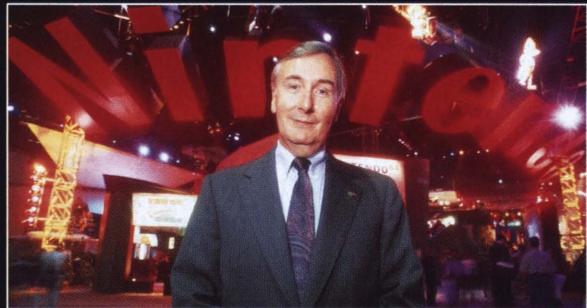
'Dream Team' software has varied in quality so far. At E!, Williams' Wayne Gretzky's 3D Hockey looked rather 32bit, while DMA's Body Harvest (top left) and the rather dreary-looking Doom (above) were nowhere to be seen

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An interview with **Howard Lincoln**

Chairman, Nintendo of America



NOA's US chairman Howard Lincoln naturally defies accusations that Nintendo is shooting itself in the foot with its N64 strategy

NOA's chairman has had to defend the Nintendo 64 vision for almost three years. With the machine now sitting in Japanese homes, **Edge** poses some difficult questions...

Edge The same day Nintendo 64 was unveiled in the US, Sony dropped the price of the PlayStation to \$199. The next day, Sega did the same. Why do you think they did this?

HL It suggests to me that there is fear in the corporate boardroom at Sony. I think they have heard the hooves coming, and that this is simply a desperate attempt to do something before Nintendo 64 launches. You know, there really isn't that much difference between 32bit and 16bit anyway. So presumably, their natural price point is probably \$149. Maybe they should go to that. It seems to me that the timing of Sony's announcement suggests panic and desperation. They didn't have to make that price adjustment because of anything Sega was doing, so the only logical explanation, unless they've simply lost their minds, is that they're fearful of Nintendo 64.

Edge What do you mean when you say that there's not much difference between 32bit and 16bit?

HL There isn't any dramatic difference between *Donkey Kong Country* and any of the stuff Sony or Sega is doing on 32bit.

Edge But gamers have had to pay more for it. Do you think this could explain why 32bit isn't as big as 16bit was?

HL I don't think 32bit really happened - the quality of the games is not any different than the 16bit games we are putting out. As a result, Sony's and Sega's sales figures combined in any month since their launch do not equal sales of SNES hardware. 32bit is stalled. And Sony and Sega realise there is not that great a market for 32bit once Nintendo 64 and other 64bit platforms come in. So, in desperation, they've done the only thing they could do. That's my view. I'm sure they disagree.

Edge But there's no arguing that the system with the lowest price has a terrific advantage. Sega's Tom Kalinske reckons that price is the single most important factor of all...

HL I don't think it's the single most important factor at all. The single most important factor in driving the videogame market is good software. It's games like *Super Mario 64*.

Edge Are you worried that there won't be enough games for the N64?

HL We are prepared today to concede that Sony and Sega will have more titles than we will have. We're prepared to concede that we're not in the PC entertainment software business in trying to compete with 4,000 titles that are out there. There's going to be a more than adequate range of Nintendo 64 software. It's just that you're not going to have hundreds and hundreds of games.

Edge Why not?

HL We don't believe that everybody in this business is capable of making 64bit games for the Nintendo 64. We feel very strongly about this, and we haven't made any bones about it. The worst mistake we could make would be to rush a lot of games to market just so that we could say, 'We've got as many games as Sony and Sega.' I don't care if we have as many games as Sony and Sega. What I care about is whether the games are any good or not. We're simply not going to get ourselves involved in a situation where we have a lot of mediocre games.

Edge Add ons and peripherals such as the Sega CD and 32X have traditionally failed. What makes you think the DD64 can succeed?

HL It's completely dependent upon software, and you should assume that the reason we're spending a lot of time and money developing the DD64 is that we have a pretty good idea of what we want to put on it by way of software. It's just that we haven't told you.

Edge Is the strategy to simply sell lots of N64s now, with a view to phasing out cartridges and making money from games on the DD64 disk drive at a later date?

HL Not at all. I don't regard the DD64 as an alternative medium to cartridges. I regard the two as compatible, so we can give a range of software mediums for game developers to program on. We're not just doing cartridges until we can get the DD64 out. We see the kind of games you can play on magnetic disk - since it's writable - to be a different genre of game. We're not exactly sure what that is yet, but Mr Miyamoto, who also has in his back pocket somebody by the name of Zelda, is going to try to

figure that out for us. And I'm confident that he will do so.

We're not going to get out of the cartridge business. Obviously, if it was possible to do *Super Mario 64* on some other software medium, we would choose that. But it is not.

Edge So to make a Nintendo 64 game as good as *Super Mario 64* you need two and a half years, the world's best design team, complete access to the hardware designers, and unlimited financial resources. Won't thirdparty developers be put off by this?

HL Could be. But with developers having seen *Super Mario 64* at E3 I fully expect to have a lot of phone calls from people wanting to develop on the Nintendo 64. Something tells me we're not going to be boycotted. After we showed the prototype of SM64, we didn't have any more people say, 'I can't figure out how to make a game in a 3D environment with these tools,' because somebody just showed them how.

Edge It makes complete business sense for a hardware manufacturer to be his own biggest publisher - so you want Nintendo's own games to be the best. But Nintendo can't supply all gamers' needs, so you have to help others along the way. How do you balance your need to help your developers with your need to stay slightly ahead?

HL There's a lot of sharing going on behind the scenes. Companies like Paradigm are supporting the N64 game developers, and there are several such arrangements in place. We want these people to succeed. We don't want them to make mediocre games.

I don't care if we have as many games as Sony or Sega. What I care about is whether they're any good

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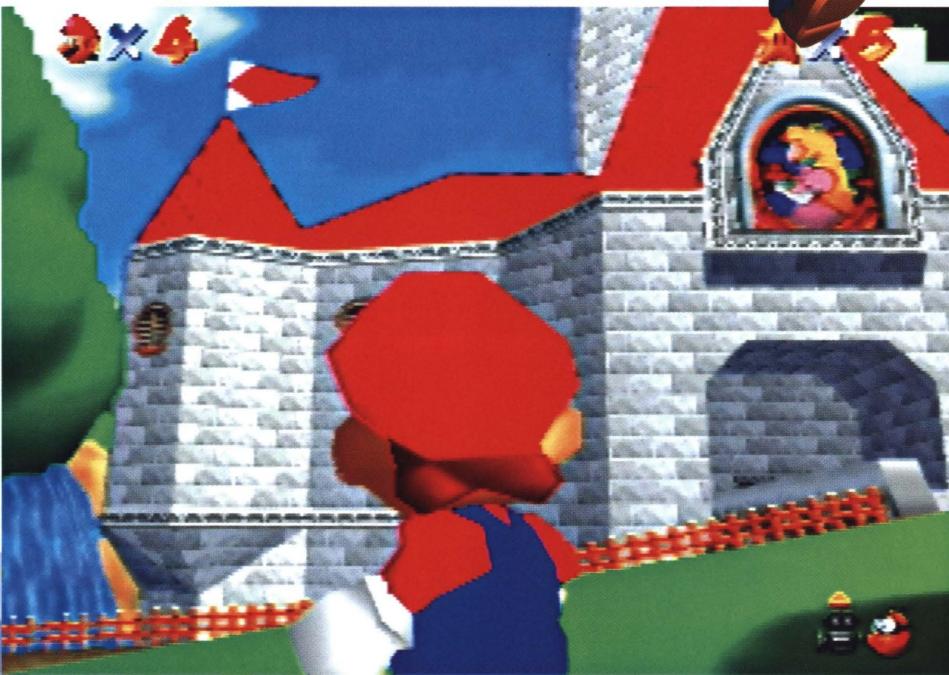
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Super Mario 64



From top: Mario views the first level from its mountain; crawling through flowers to sneak up on a snoozing enemy; green blocks give Mario a winged hat; using it allows him to soar across the landscape



Mario's adventure begins outside Princess Peach's castle. The Nintendo 64's graphical processing muscle generates an incredibly smooth and detailed environment, outperforming existing 32bit formats considerably

If Nintendo aimed to set itself a tough task, choosing to make the first Nintendo 64 title a continuation of the most legendary series of videogames in history must surely rank as the most demanding one imaginable. Mario's lineage, after all, is a decidedly two dimensional one, and hardly ideal material upon which to base what was destined to be the most intensely scrutinised 3D videogame of all time.

Nintendo establishes its intentions right from the moment you power up the game: when you're greeted with the spoken words: 'It's me... Mario!', in a high pitched, pseudo American Italian accent, followed by a polygonal representation of the portly plumber's head, which can be playfully tweaked and tugged using a glove like pointer.

At a time when the PC gaming fraternity is getting its thrills from guns, guts and gore from the likes of *Quake*, Nintendo is working at the other end of the spectrum, expounding on the overtly jolly themes that has made it the biggest videogame company in the world.

Any preconceptions about this being a game purely for kids are quickly discarded, however. True, *SM64*'s presentation doesn't sit comfortably alongside the likes of '90s new breed games such as *Wipeout 2097*, but videogames exist to entertain, whether they come drenched in *Designers Republic* imagery or gaudy, toytown like colour schemes: whether their soundtracks feature full on Chemical Brothers arrangements or disposable plink plonk lift muzak. And entertainment, more than anything else, is *SM64*'s watchword.

The moment the game hands control of Mario over to the player, an experience of discovery begins. With over 20 actions to experiment with in the opening environment (a grassy area dotted with trees, populated by birds and butterflies, and flanked by a beach), the temptation to simply toy with the controls (consisting of a combination of the analogue stick, the A and B buttons, and the Z 'trigger' button on the joypad's underside) without achieving anything in particular is overwhelming.



The Bom King (left) is the first boss character that Mario encounters. Defeating him is easy – simply grab him from behind and throw him (above left). Koopa challenges Mario to a race (above right)





Using 3D, SM64's designers have invented all manner of innovative enemies, such as these deadly cubes



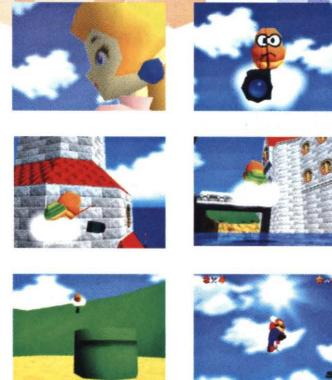
Swimming underwater is a great gameplay twist (above left). As in Super Mario World, finding switches to activate blocks is an essential part of the overall challenge (above right)

Along with simple punches and kicks effected with simple stabs of the attack button, it's possible to pull off sliding attacks, foot sweeps and bottom bounces (reminiscent of those in *Yoshi's Island*). The lure to experiment turns out to be a fortunate one, as familiarity with how Mario behaves and performs is essential – unlike previous Mario games, where skills picked up in one could be easily applied to another, there is little you can bring to SM64 apart from the willingness to learn.

This fact makes it initially less accessible than any other Mario title. Getting to grips with its analogue control method (jig the stick slightly and Mario tiptoes; push it to its full throw and Mario runs; in between he walks) is not really where any difficulties occur, as Nintendo's new joypad technology performs excellently – it's the way the action is viewed that takes some getting used to. The game camera moves by its own accord almost constantly, with the intention of presenting what's happening on screen to the optimum efficiency.

This means that you rarely get to approach a challenge from a viewpoint that you're accustomed to, and will involve frequent frustration as you attempt to run across a narrow gangplank between two floating islands, or across a thin bridge spanning a rushing subterranean river, for example. It's all a matter of practise, of course, and what starts out as a niggle eventually becomes simply another aspect of the playing experience, as manipulating and fine tuning the camera view yourself is as user friendly as could be imagined.

Considering SM64's 64 megabit cartridge format, the scale and variety of its content is astonishing. Consisting of 15 courses, each a sprawling world in itself, there are countless secret areas and bonuses to discover, in the true Mario tradition. Your quest will take you over ice covered



SM64's realtime intro sequence shows Lakitu seeking out Mario

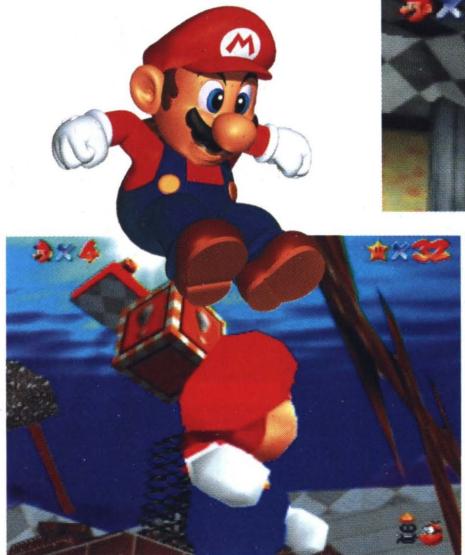


Once activated, red blocks can be smashed to reveal a power-up which turns Mario into a metallic form. In this invulnerable state it's possible to smash through enemies and use gained weight to sink in water

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Format:	Nintendo 64
Publisher:	Nintendo
Developer:	In house
Price:	£9.800 (€60)
Release:	Out now (Japan)

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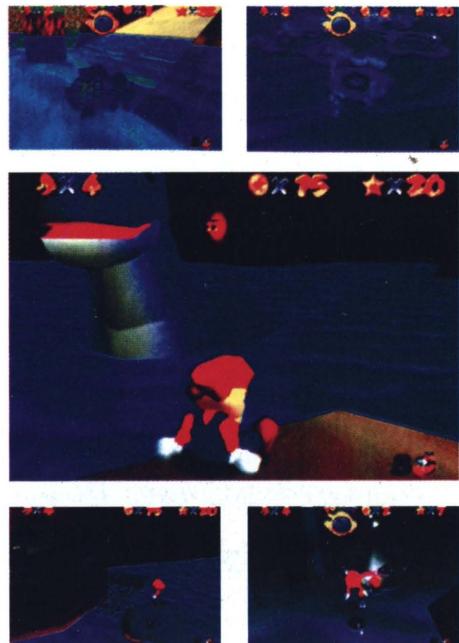
Exclamation blocks (left) reveal bonuses. Finding a mirror (above), which reflects SM64's cameraman, Lakitu, is a magical moment. The Ghost House (right column) is very atmospheric

mountain, around sand-ridden pyramid and through murky oceanic depths, encountering old and new foes, and old and new challenges along the way. Each new level surprises and amazes in its design, and each is a thrilling experience in itself.

SM64's graphics, for all their cuteness and surreal tendencies, are the most magnificent ever seen on a home system. Shigeru Miyamoto's dream of producing something that is more akin to an interactive cartoon than a videogame has been realised to a remarkable degree: at times it's almost as much fun to sit back and watch someone else play *SM64* as it is to be playing it yourself. Animation is extravagant, textures are impeccably lavish, and even the most seemingly superfluous touches are rendered with the kind of

detail that any developer other than Nintendo would not even consider implementing.

While a large part of the game is spent tackling straightforward challenges (negotiating hazardous landscapes, using your myriad abilities to collect hard-to-reach stars, etc.), there are many sections to cause scratching of heads. As in previous Nintendo games, though, the gaming environment is generously peppered with signposts, each giving the player little pointers as to the whys and wherefores of this often puzzling artificial world. Early N64 adopters picking up Japanese machines will find such guidance fruitless, of course, but its presence is typical Nintendo, and demonstrates its unmatched understanding of consideration for the player.



SM64 is packed to bursting with jaw-dropping graphical set pieces such as this sliding-tile section (above). Mystery-packed watery sections (right) are some of the game's high points



Though levels of ice and snow are predictable in platform games, no-one does it better than Nintendo. From left to right: making a typically tough leap; a giant penguin has lost her offspring; Mario finds the nipper in question; bringing the two together again is a hazardous undertaking



This desert-themed course is packed with hazards, including sinking sand. From left to right: reaching its focal point, an enormous pyramid; inside, hanging from a steel cage-like arrangement; being chased by a rolling enemy; surfing the sand with a shell - another fun element of SM64

SM64 puts Nintendo's much-publicised preference of 'silicon over optical' storage to the test, and the results are pleasing. Its flow is seamless - moving from the main game area (the castle) into one of the areas that adjoin it is instantaneous, with no delays for loading or decompression in evidence. PlayStation and Saturn owners will have long since become accustomed to loading waits, but SM64 may remind them just how console gaming used to (and Nintendo would no doubt argue, should) be: immediate.

The lack of a CD soundtrack doesn't hamper the game, either. Nintendo's in-house sonics supremo Koji Kondo (who contributed soundtracks to many a legendary SNES game) turns in a typically inspired performance in squeezing memorable audio out of Nintendo's 64bit hardware. While, perhaps predictably, some musical tracks fit the typical cheesy Japanese game music mould, others, such as the sitar-laden burbling score of the first

fiery level you encounter, generate at least as much atmosphere as any CD-streamed track. Spot effects are similarly impressive - Mario's more noteworthy actions on-screen are matched by audible accompaniment in the form of excited whoops and hollers, giving his personality even more spark.

The premier Nintendo 64 game ably vindicates the delay imposed upon the machine's release by Shigeru Miyamoto and his team of designers. It's a well-known fact that few videogames delight in the fashion an example from Nintendo can, but no Nintendo game you've ever seen is nearly as delightful as this new 64bit breed.

The world of videogaming has just changed forever. The prospect of what Nintendo can deliver further down the line truly boggles the mind...

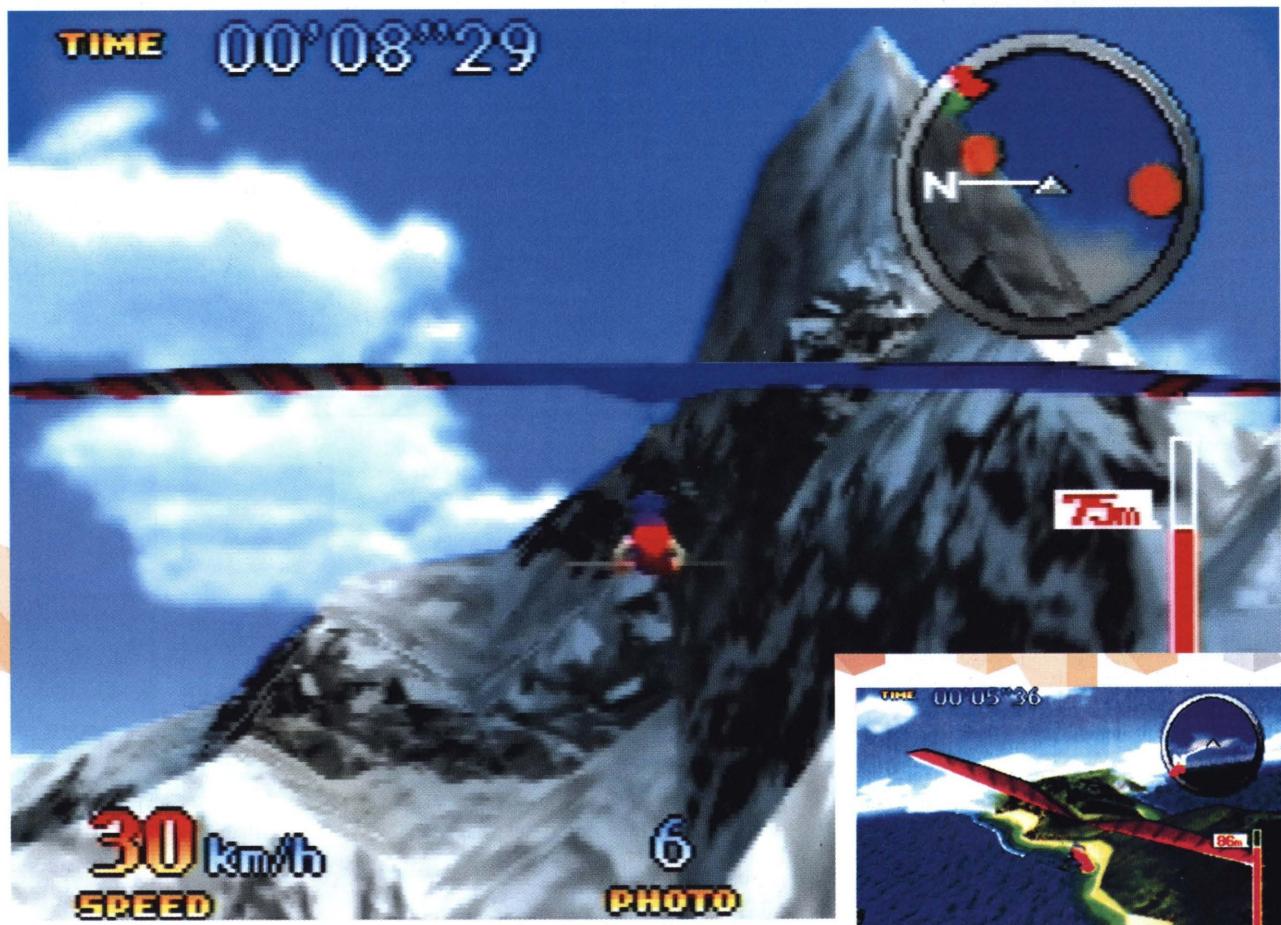


Edge rating: **Ten out of ten**



Upon first reaching the sunken ship in this level, your first task is coaxing a giant conger eel out of its home (left), then opening the chests inside in the correct order (above). Get it right and the craft will surface (far left)

PilotWings 64



With scenery this beautiful it's hard to concentrate on the missions. Some texture mapping is almost photorealistic in quality (above). Tropical islands (right) are particularly stunning

Format:	Nintendo 64
Publisher:	Nintendo
Developer:	In-house/Paradigm
Price:	¥9800 (£60)
Release:	Out now (Japan)

Although media attention will inevitably focus on the brilliance of *Super Mario 64*, it may not provide an accurate indication of how good or indifferent N64 titles will be. After all, *SM64* had to be good - the cute little figure is Nintendo's icon, the company's main asset. Nintendo simply couldn't afford to get that game wrong. Recently, however, sceptics have been claiming that the N64 will rely solely on *SM64*, and that all other games will pale into insignificance. *PilotWings 64*, then, is an important release - it's a sign of what we can expect from titles that don't involve a certain Italian plumber. And, if it's an accurate sign, the future looks extraordinarily bright for Nintendo.

In terms of plot, *PW64* is very similar to its 16bit predecessor. The player must complete dozens of flying tests in a variety of aircraft over a

number of different island settings. Each flight involves completing a different set of tasks. These usually include zooming through hoops in the sky, shooting at targets on the ground, even taking photos of buildings, and all have to be followed by a neat landing. When the stage is complete, players get points based on how they've coped with obstacles, how well they landed and how stylishly they performed the whole exercise. If the score is good enough, the player then goes on to the next level and faces a set of more difficult missions and tasks.

Inevitably, the first thing that grabs the attention are *PW64*'s incredible graphics. Each island setting is faultlessly designed, extraordinarily detailed and just beautiful to look at. 'Holiday Island', for instance, where the first three missions take place (one mission for each of the craft), is a



Some of the panoramic vistas are breathtaking, despite scenery occasionally popping up slightly



Missions are varied both in terms of scenery and the time of day at which they take place. Furthermore, all locations are fully interactive, meaning you can land wherever you like

lush green tropical location featuring small, intricately designed buildings, towers and even a fairground. It's a hive of activity: when you fly over the coast, the sea roars and the waves sweep realistically into the shore. There are even speed boats coasting through the water, and hang-gliders circling a mountain peak. Sometimes it's hard to follow the mission objectives because there is so much to explore and so much to find out about each location. All this and 'Holiday Island' is arguably the least impressive location - in fact, it may even slightly disappoint those expecting miracles from the N64.

Such worries are misplaced, though - miracles do happen, and later islands impress with the sheer panoramic scale of their geography. One of the two missions which make up the second hang-glider stage starts on top of a huge mountain. The player glides over the summit for a few seconds

and then suddenly the surface drops away and a huge, astonishingly steep gully appears. The point at which the plunge begins and the player looks down at the gorge beneath is simply breathtaking. The incredible scenery is accentuated by the almost photorealistic textures: mountains look like mountains, water looks like water (including spectacular splashes) and even fire looks realistic. There's little scenery pop up (only the huge islands suffer at all) and no pixelization - it's all so far ahead of anything else it simply defies belief.



An early hang-glider mission involves taking a photo of this chimney, busy pumping noxious gasses into the air

PW64's scenery is full of detail. The Statue of Liberty (top left) is a nice touch, as are the whales (top right) and various boats (above left) that litter the seas. Bridges often play a role in missions (above right)

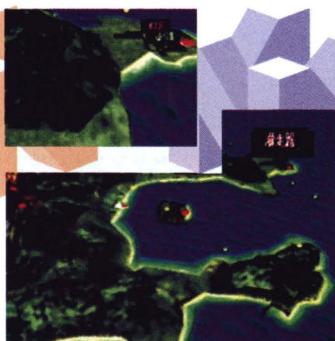
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The birdman section allows the player to explore a beautiful island setting. The huge tower (inset left) and fountains (inset right) are impressive, as are the hang-gliders (main)



The gyrocopter has the most familiar feel of the craft on offer. Some missions involve manoeuvring through circles (above right)



Each mission is accompanied by a map screen so that a good flight route can be planned. The player can zoom in and pan around to get a comprehensive view of the island

Even when a mission is flown above huge cityscapes (usually disastrous due to the amount of detail needed to make them look believable) PW64 impresses above and beyond the call of duty. Planes zoom overhead, traffic noises emanate from the streets below, and skyscrapers, emitting realistic lights, loom dangerously in your flight path. There are areas where the frame rate can chug slightly (usually when you fly through an area of particularly intense graphical detail) but this is rare and doesn't detract from the action.

Visual quality is an extraneous detail, though. What really matters is gameplay, and, like the graphics, it is something that may not immediately impress. Yes, the early levels are ridiculously easy, but they are designed to allow the player some practice with each of the first three vehicles. Once you pass the three missions that make up the opening stage, things get a lot more difficult, complicated slightly by some Japanese text.

The beauty of the game, however, is that, although each mission has essentially the same remit - go through the hoops, land well, etc - each represents a completely different play on the theme. The variety is partly due to the fact that each of the craft has its own peculiarities which need to be mastered individually. To begin with you can choose between a hang glider, rocket pack and gyrocopter, and each flies in a unique way. The hang glider, subject to thermals, is the trickiest to control with a tendency to dive and swoop when the player least wants it to. The gyrocopter does at least have an engine, so keeping it airborne is a cinch. However, the craft's turning circle is wide, making it difficult to line up with hoops if they're perpendicular to each other. The 'copter provides the most traditional flight sim experience - it needs to be treated like a plane in the air, and has to be landed on a runway.

Easiest to get the hang of is the jet pack, which has two rocket jets either side of the pilot that can be angled with the analogue pad and then fired with the A button. This craft is not subject to air



Difficult weather conditions can affect each craft's performance. Prepare for snow, high winds, and ominous storm clouds (above)



The selection screens allow you to choose a normal mission (top left) or, if you have performed well in earlier missions, one of the bonus tasks, featuring new modes (top right). Afterwards, a character can be chosen to undertake the mission. All of them have a slightly different version of each craft



The right shoulder button brings up alternative views: top-down for the jet-pack (above left), internal for the gyrocopter (above centre) and close up for the hang-glider (right)

patterns like the hang glider and it can manoeuvre quickly, unlike the gyrocopter. Unfortunately *PW64*'s designers have realised this and the jet-pack missions are therefore much more demanding - one involves flying through a city crowded with skyscrapers and trying to get through hoops hidden in the most inaccessible cubby holes.

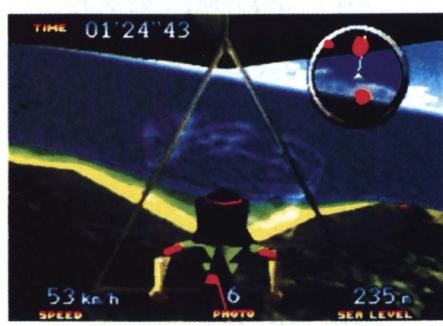
Adding to gameplay diversity is the fact that, along with the individual traits of the six selectable pilots, each of the craft has its own special ability: all accessed with the trigger on the N64 controller. The hang glider has a mounted camera, so many of its missions involve taking pictures of an object on the landscape. One of the earliest tasks is to take a photo of an oil refinery pumping out pollution through a tall chimney - the player has to swoop in, photograph the offending chimney and land safely on a pad over the hill. This is great fun, especially considering the espionage theme - zooming over the industrial complex is rather like being in a James Bond film (only with cheesy music).

The gyrocopter's missile launcher is the most fun. Many missions involve shooting at circular targets on the ground, and it's an amazing thrill to snake through a valley at 168 kph, hone in on a target and blast it to pieces before rising out and into the night sky. In comparison, the jet-pack is rather disappointing - its special function is a retro-thrust which stops the contraption dead still. This is vital at times, however, especially for landing in windy conditions.

Another major addition to gameplay is the diversity which Miyamoto and his team have crammed into the uncomplicated game structure. In one jet-pack level the green circular hoops you need to fly through are substituted for huge blue balls. When one is hit it bursts revealing six smaller orange balls which all have to be burst, despite the fact that they're bouncing away over the landscape. Another mission requires the player to get a giant ball into an enormous translucent drum. Weird.

In a sense *PW64* is a marvellous combination of traditional flight simulation and surreal Nintendo gameplay. There is no doubt that the sensation of flight, the sense of momentum and the force of gravity are all totally convincing. There is also no doubt that each of the craft you fly in the game handles in a unique fashion. The accuracy of the 3D flight model combined with the luscious scenery makes *PW64* a supreme flying experience. On top of that, however, are the curious missions, the Mario face on Mount Rushmore, the hidden sections, etc. It's a weird mix of total realism and self-conscious video game elements, but the two don't grate - the player simply adapts to each strange mission without a thought for how a singular flying experience could possibly involve trying to pop huge bouncing balls.

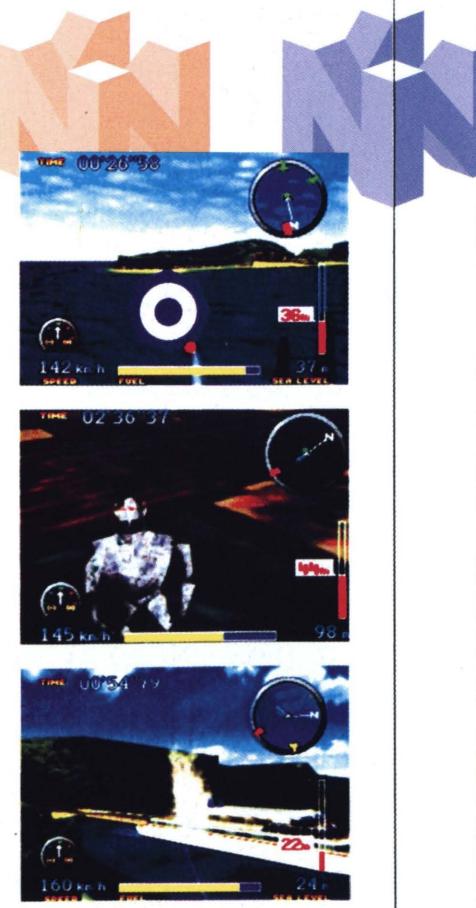
PW64 is classic Nintendo: a simple, addictive game idea embellished with extraordinary detail and graphical finesse. Silicon Graphics' promises of one day delivering a games console with the power of an Onyx are legendary. Well, this game looks like a lower resolution Onyx and it isn't science fiction, it's here, now. This is easily the most impressive 3D ever seen in a video game. And to think it's all there to envelop such a charmingly diverse and enjoyable game. It may be that there is no other videogame developer in the world that could visualise and execute a game like this. Sony, Sega, Start worrying now.



Understanding thermals is important for success in the hang-glider missions. Circling within one increases the craft's speed and altitude

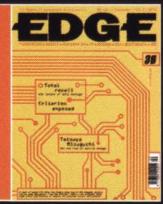
Edge rating:

Nine out of ten



In the gyrocopter, you can target objects and fire missiles. The giant rock man (centre) is tough to hit

Tetsuya Mizuguchi



"I want to make some new games based on dreams... or related to fantasy"; "I want to create new worlds... use nice colours..."; "I preferred doing something in relation with human senses..."; "I really love techno music." Tetsuya Mizuguchi's career making driving games looks like it may soon take a turn.

Tetsuya Mizuguchi has big plans for videogames. Former producer within Sega's Amusement Machine R&D Department 3 (AM3) and responsible for hugely successful coin-ops, *Sega Rally Championship* and *Manx TT*, he is now in a privileged position having formed a new AM department, provisionally titled 'AM Annex'. In his late twenties and currently enjoying a certain amount of autonomy within this new division, Mizuguchi-san's offices occupy the fourth floor of a small building a stone's throw from Sega's headquarters. And somewhat ironically, considering its racing game heritage, it sits above a flashy car showroom.

Drawing on the talents of a small team of developers previously working within AM3 and AM2, Mizuguchi's first project is *Sega Touring Car Championship* - the latest game to use Sega's Model 2 technology. Based on the official touring car racing season and expected to be ready in time for the JAMMA show in mid September.

Mizuguchi recently invited Edge to look at a 50% complete version of the game (even well before the fervent Japanese games press got a look in) and to question him about the new department. A detailed look at the game will follow in E37.

Edge AM3 has been a great success - what made you want to set up a new AM department?

TM Our new department is a small one but that's not necessarily a bad thing for a working environment - big departments have their disadvantages. Before creating the new division I explained my concept to the head of AM3 and then to **Yu Suzuki**. However, we all agreed that creating a new department separate from AM3 would be a good thing. First, we began with about six or seven people - initially the programmer of *Sega Rally* and some designers.

Then some more staff joined us. We're going to make two to three games a year and later this year we may even start work on *Sega Rally 2*...

Edge Will racing games remain your speciality?

TM I hope to make one per year but while I'm still keen to make racing games I want to pursue some new directions... our new department has some very good skills and design sensibilities. Personally, I want to make

some new games based on dreams - not that *Sega Rally* wasn't a dream of mine! - or related to fantasy. I want to create new worlds and keep things very high-end - use nice colours and very realistic effects. We want to make captivating games based on new concepts, we want to make some challenging games.

Edge How long have you been with Sega?

TM If my memory serves me well, after graduating from university I entered Sega back

in 1990 - so about six years. I graduated from Nihon University of Art, a famous Japanese art college, where I majored in literature. Students can choose from different subjects such as literature, journalism, etc.

Edge And this lead to a career in arcade games...

TM When I was at university I studied different topics like physical senses, media... I was also interested in marketing... but there are no physical production tasks in marketing so I thought it

vice director, AM Annex

computer graphics when I was at university. Designing *Megalopolis* was fun - I got to make my first CG movie, unveiled at Siggraph. It was a great experience for me... but I haven't designed a prerendered CG movie since then.

Edge Why did you choose Sega over Nintendo?

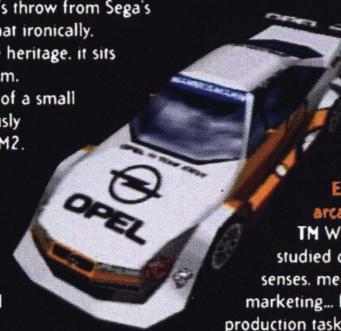
TM Simply, because I was interested in arcade games. Nintendo is a consumer company, Sega had both businesses and I wanted to make some arcade games. In the beginning I always wanted to make arcade games but now, I admit, I would really like to make console games, too. [*Sega Rally* was converted by a consumer software department, not AM3].

Edge What's your opinion of working at Sega?

TM Sega is overflowing with creative-minded people. It is a very good place for creativity. In our new department, however, we don't feel like we're part of Sega's AM departments. If anything, we feel as if we're an external team. It doesn't mean we are completely free but it enables us to see what is happening beyond Sega's AM departments.

Edge What relations does AM Annex have with AM2 and AM3?

TM We all belong to Sega, so there are some



Unlike the arts, where it is often a matter of taste whether something is good or not, creating good interactive entertainment is easily more definable

would be boring. I preferred doing something in relation with human senses or entertainment. Something more in relation with human nature, a field where I could do some research. I discovered that the entertainment world would be suitable. Unlike the arts, where it is often a matter of taste whether something is good or not, creating good interactive entertainment is more easily definable. I chose Sega because it was using new technology and I was able to study things like human movements.

Edge What was your first project?

TM When I entered the company I joined a department which was doing some arcade cabinet design. During the first year I got involved in many different projects, but because I was interested in computer graphics, I joined a CG department that was designing *Megalopolis* [a prerendered shoot 'em up developed for the Sega AS-1 simulator]. This position proved to be interesting as I had already been involved with

frequent exchanges of staff between departments. Everybody respects the work of others and when a particular division is doing something exceptional, other departments do not hesitate to say so. That is probably one of the best aspects of working within Sega.

Edge Is Sega a typical Japanese company in the way it treats its employees?

TM No, not really. I believe Sega gives its employees lots of freedom. I think it is possible to compare the atmosphere within Sega to the old Hollywood atmosphere. I believe it will be very good for the worldwide leisure entertainment industry to have, at its core, key people who have already had ten or 15 years of work experience in Sega...

Edge How many hours do you work a week?

TM I really don't know. Normally, I begin around ten o'clock but it really depends on the day. We sometimes spend nights in the office. It really depends on the project.

Edge In Japan, has Sega's image changed over the years you've been with them?

TM I think so. When I entered Sega, the image of the company was not as strong as it is now. But recently Sega has done some great things.

Edge What interest or hobbies do you have?

TM I like travelling and I'm fortunate to be able to travel a lot with my job. I also go clubbing a lot and I really love techno music, so I often go out in different techno clubs in Tokyo. Needless to say, the music in *Sega Touring Car Championship* will be techno! In Japan, many young people are making this kind of music, or are playing it as DJs, simply because they like it. I enjoy going to techno parties and in this kind of place there is lots of energy and creativity. Sometimes, people will approach me if they know I work for Sega and make me listen to the tapes they've created...



Sega Touring Car Racing is the first project to come from Tetsuya Mizuguchi's 'AM Annex' division. Real cars such as Mercedes (above) and Opel will feature



Sega's profile may be dented by the popularity of Sony's PlayStation and shaded somewhat by the introduction of N64, but its US president believes that it has a secret weapon, borne of the heavily researched consumer desire to access the internet from the living room. Then there's the all-conquering *NIGHTS...*

Being second in a two-horse race is never easy. Sega has done well to reaffirm the Saturn's status in the next generation console market but now it has Nintendo to contend with. Edge spoke to Tom Kalinske shortly before he packed his bags...

an audience
tom kalinske tom kalinske tom kalinske tom kalinske

Photography by Jude Edginton



tom kalinsky

With tom kalinsky

Continued

Sega may still be the underdog in the home videogames arena, but now its credibility is a lot more intact than it was 12 months ago. It has proved it can outperform Sony's PlayStation with games such as VF2 (many programmers maintain this game would be an impossible feat on the PlayStation). It has shown it can compete on price terms with its £200 Saturn. And it has even taken the online initiative long before its rivals. **Edge** spoke to the company's bullish US president shortly before he decided that Sega was no longer for him (see news). Bid a fond farewell to SOA's king of hype. **Tom Kalinske...**

Edge **What do you think led to Sony dropping the PlayStation price to \$199?**

TK I think they're reacting to the Saturn dropping to ¥19,900 (£120) in Japan, which then started out-selling them even more dramatically than it was at Christmas time. I was in Japan in April, and you couldn't find a Saturn on the shelf.

In Japan they're about to announce the three millionth Saturn sold through to the consumers. I think Sony's probably done just over two million. That's a big difference. It's something we don't see in Europe and the US, but you can bet they view this pretty damn seriously at Sony headquarters in Japan.

Edge **You think Sony's scared of the Saturn?**
TK Absolutely. We've got great software. We do, after all, have three 32bit processors in the Saturn, which initially people had problems with, but today I believe developers are saying, 'You know what? We can do more and more with this. We're realising that we've only been utilising some small percentage of the Saturn's power, whereas in the PlayStation, we're pretty well maxed out at 80% or so of the capacity.'

And then we've got the NetLink. This thing is researched off the map. I mean, I've seen a lot of research in my life, but... people really want to connect to the Internet, and a whole lot of them don't have \$2,000 to buy a PC. Interestingly, the people who do have the money and have spent it on the PC also want to connect via their family room, because everybody sees the added benefit of being able to share what's on the Internet with a larger group of people in front of the TV. And then, of course, they are also able to play games online with groups and families in other parts of the country. It's a very important, very highly researched product.

So I think Sony said, 'Oh my God, they've got a network link-up here: they've got an Internet peripheral: they've got better software: they're killing us in Japan, we'd better do something.'

Edge **But Sega's peripherals have traditionally been disasters. If you look at the Menacer, or the Activator, or the Mega CD, or the 32X...**

What makes you think the NetLink will be any different?

TK Historically, that would be correct. But this is different - everybody knows that a fast modem alone is around \$200. So here we're talking about a 28.8bps modem plus special chip that allows it to do what it does with the Saturn, and browser software - all for just \$200. I think everybody will recognise the value in that.

Edge **So you think the NetLink could make the Saturn attractive to the people who aren't interested in gaming but are interested in getting on the Net for cheap?**

TK Sure. We still believe the Saturn's the more essential purchase, but there are folks out there who believe that browsing the Internet's awfully important. So for \$200

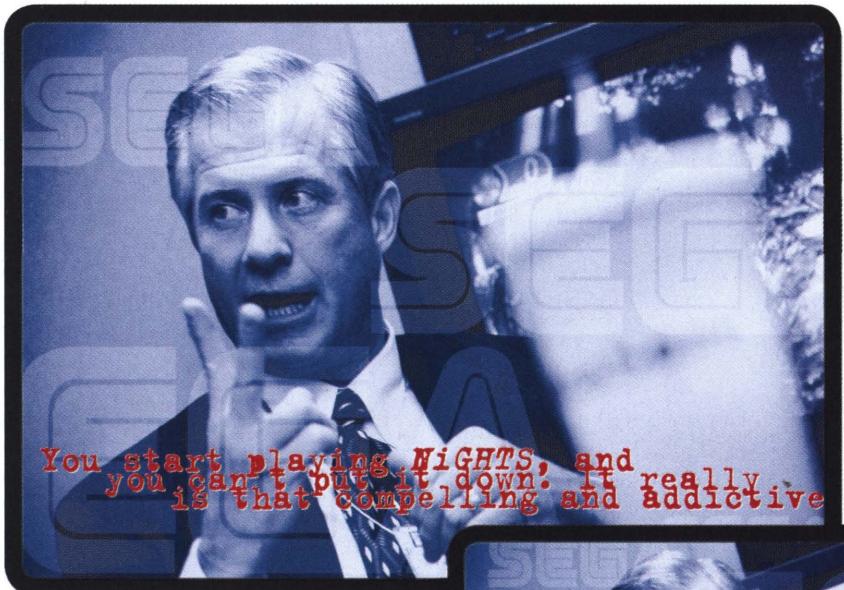
Edge **A lot of people say that Sony's decision to drop to \$199 has a lot less to do with Sega than it has to do with the N64...**

TK The whole deal with the Nintendo 64 depends on whether you really believe in what Nintendo's doing, I suppose. If you're Sony and you believe in it a lot, maybe you'd be more inclined to react to it. From our point of view, we still want to see it, we still want to see if it's real. We've had three or four announcements from Nintendo that haven't been lived up to. And so I don't know what to think on this.

Edge **After seeing 100 Nintendo 64's running real software, it's probably safe to say that it is real, Tom...**

TK But it is still a cartridge system, and we all know the problems with cartridges from an inventory cost standpoint [cartridges typically cost around \$30 to manufacture, compared to \$5 for CDs]: from a retailer standpoint [they have smaller profit margins]; from the thirdparty licensee standpoint [who don't want to risk being stuck with unsold games at \$30 a go]; and from the consumer's standpoint.

Edge **What's the problem with cartridges**

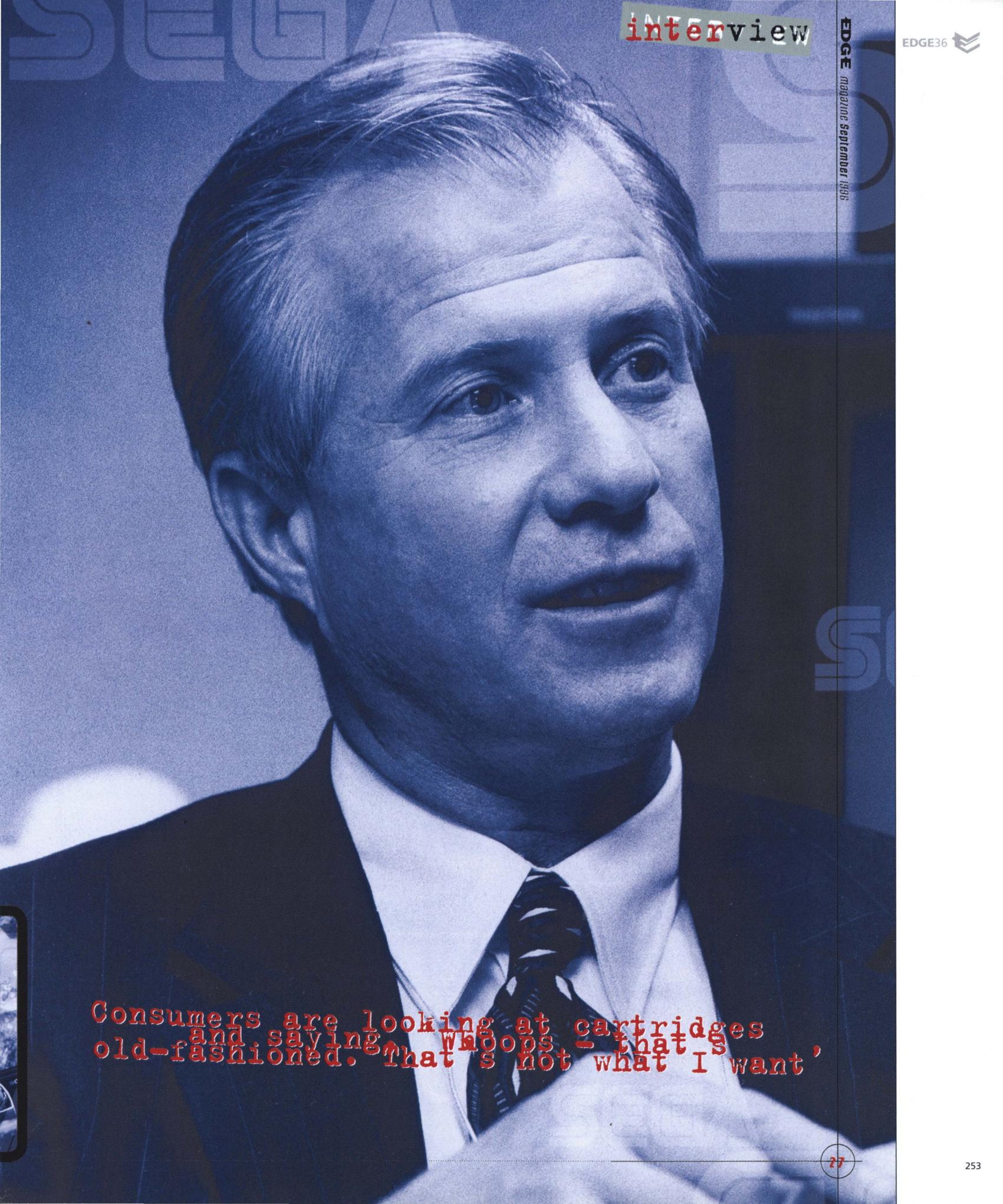


they may view this decision as, 'Which is the peripheral and which is the primary?'

Edge **So you'll be marketing the Saturn with the NetLink as a way of getting onto the Internet for less than \$500?**

TK Yes, but it worries me a little to associate our products with the word 'computer'. I like the idea of positioning the Saturn as a great games machine, with which you can now access the Internet - which provides entertainment, too.





Consumers are looking at cartridges
old-fashioned. Whoops - that's not what I want'

Continued

from the consumer's standpoint?

TK Our research says that the consumers who are already moving toward 32bit or moving to the PC are looking at cartridges and saying, 'Whoops - that's old fashioned. That's not what I want to do any more.'

Edge What's old fashioned about games that don't take time to load up? And you yourself managed a cartridge market very well in the 16bit era and made a whole lot of money. You could probably do it again, if you had to. So why can't Nintendo?

TK The 16bit cartridges cost a lot less than those for the N64. I understand that the hard cost was going to be something like \$50. That's nuts! Who wants to take that inventory risk?

Imagine you're launching a hit game. So you're going to make one million of game X, costing \$50 each, before you sell any. That's \$50 million tied up in inventory - you've got to be crazy to make that kind of a decision. It's certainly crazy for the retailers to go along with you because if the product doesn't sell they suffer with all the overstock and they've got to come back to you for the mark-down money and it messes up the market place.

But if it's a CD-based product, and you made that same error, your mistake and true cost is a lot less. So from a financial point, cartridges don't make sense.

Edge Nintendo will counter this by saying that because it's releasing only a small amount of games, it can work only with people who can afford to take this risk and ensure all the games will sell well.

TK Never in the history of videogames has a hardware manufacturer been successful without widespread thirdparty support.

It didn't happen with Atari, nor with Intellivision - which was why these systems failed. Thirdparty support was necessary for 8bit and 16bit. So while it may be easy for Nintendo to say these things, I think they need thirdparty support. You need a broad selection of product out there in order to have the consumer pay this kind of money for a system.



Edge Can *NiGHTS* do for the Saturn what *Sonic the Hedgehog* did for the Mega Drive?

TK I believe it can. It's as different. When *Sonic* came out it was seen as a totally different type of play, primarily because of the speed of the character. *NiGHTS*, too, is similar in a different sense - it's the feel of playing this product. Yes, it visually looks great, but it's the feel that's so enjoyable. You start playing it, and you can't put it down. It really is compelling and addictive.

Edge Sega has AM2's Yu Suzuki and Sonic Team's Yuji Naka. Obviously, Nintendo has Shigeru Miyamoto. Is it hurting Sony that they don't have one star game developer?

TK Oh sure. You've got to have a thirdparty line-up, but you also have to be able to do it yourself. So, you know, I look at my two competitors and I see Nintendo doesn't have the thirdparty support. Sony has thirdparty support but doesn't have the internal development capability. Sega has both, so that's why again I have great hope for the future.

Edge Despite how you carve up the market share, speculators say that 32bit, as a whole, just hasn't happened in the numbers people were expecting. Is this true?

TK If you look back at late 1989 and 1990 when we were just starting 16bit with the Mega Drive, we sold less than 400,000 the first year in 1989, and then we sold about 450,000 in 1990. So, after a year and a half we'd sold about a million units.

Now take a look at what's happened today. Either us or Sony will sell far more than that. By the end of 1996, the total Sony-Sega sale combination will show an adoption rate way ahead of 16bit.

Edge Have the high prices of next generation systems (compared to 16bit) affected things at all?

TK Interestingly, the pricing's kind of comparable. If you took 1989 prices, the MegaDrive was \$199. Translate that to

today's prices, and it's probably about \$250.

So the 32bit adoption is far faster than I think one of my friendly competitors - whom I won't mention - would have you believe. You know, he said, 'Oh, gee, 32bit isn't happening,' purely because he has this other large Japanese company breathing down his neck. But it's simply not true. The adoption rate is far faster on 32bit than it was on 16bit.

Edge When you look at the Nintendo 64 software, do you see it as a leap over and above either yours or Sony's current 32bit software?

TK I haven't had the time to really study it, but I don't think it looks any better than *NiGHTS*. I think *NiGHTS* looks - to me - to be a superior game.

Edge SegaSoft makes sense in lots of ways - Sega makes great games, and it's good for gamers on different platforms that they get to play them. But if SegaSoft publishes a game on the PlayStation, it has to hurt the Saturn, right?

TK First of all, SegaSoft has not published a game on the PlayStation yet. They're publishing on the Saturn and PC through this year. We're trying to set that company up as an independent software publisher - like Electronic Arts, for example. Therefore, it really should be publishing on any viable platform. Of course, I can quite easily say that, but all the time I'll be thinking, 'I hope that other viable platform is no threat to the Saturn.'

I think if you want to set this up in a way where it makes sense to the employees in the company, you have to live with that kind of conflict. Now, at the same time, I think that Sega of America is going to prove to SegaSoft that they should be sticking with the Saturn and the PC as opposed to our direct competitors.



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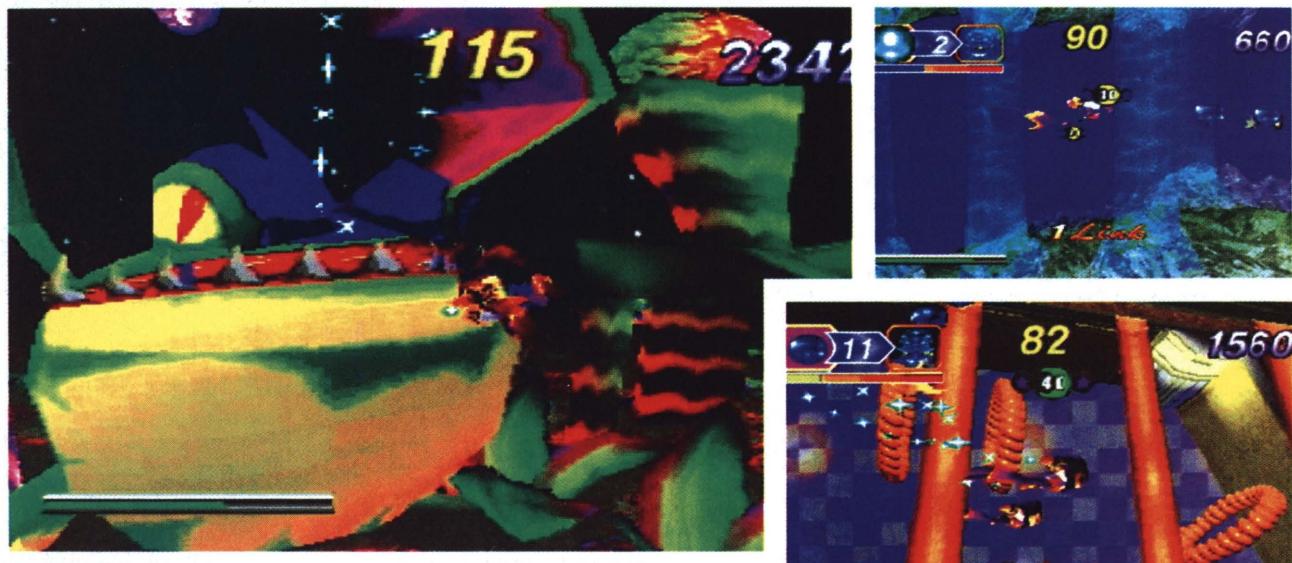
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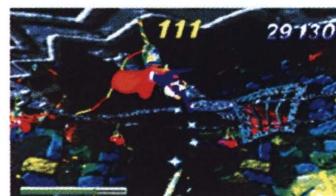
NIGHTS into Dreams

With *Mario* fever taking over the game playing world, Sega has once again employed the services of the *Sonic* developers to produce a title equal to Nintendo's masterpiece.

But is it sufficient to awaken Sega from its 64bit nightmare?



Gillwing is one of the earlier bosses and is fairly easily disposed of via about six or seven punches to the nose (left). Some scenery is highly reminiscent of *Sonic* (right)



Puffy is another boss (top). NiGHTS must pick her up and throw her through a series of walls

Sonic the Hedgehog sold the Mega Drive to a whole generation of gamers. However lucky Sega was to break into a freshly dormant European videogames market, its mascot character helped lodge the company in the public consciousness and personified the blue half of the battle against Nintendo.

Sonic Twosday is now but a memory, though. With the Saturn, Sega has been fighting the new enemy, Sony, and up until now the battle has been notable by the absence of mascots. NiGHTS may be an attempt to bolster the public perception of its new(ish) machine, and provide a firm selling handle for the console in its continuing struggle against the PlayStation. Additionally (in Europe at least), Sega has nine months before Nintendo re-enters the fray. An older,

established user-base was the advantage Sega held in the days of *Sonic*, and it's what it really has got to aim for now.

But is NiGHTS a good enough game to accomplish all that Sega hopes to achieve with it? The answer is, unsurprisingly, not a simple one. There can be no doubt that the game is easily the most original and (with the possible exception of *VF2* and *Sega Rally*) visually dazzling title seen on the Saturn to date. Set in a selection of 'dream worlds' the player can either walk ground-based characters around with complete freedom or fly with impressive speed over four set routes per level. The combination of low-clipping 3D terrain (all impressively texture mapped), speed (unrivalled in a platform game on any of the next generation consoles) and some almost drug-induced moments, has the heads of even the most cynical turning to have a look.

The story behind the game is intrinsic to the structure of the title. Two children, Elliot Edwards and Claris Sinclair are having nightmares. In their dreams they get transported to worlds, partly created by them, to have their wisdom, hope, intelligence, and purity stolen by the head of the evil world, Wizeman. With the help of NiGHTS (one of Wizeman's rebellious evil spirits) they must get these four attributes back, travel through the dream worlds and finally defeat Wizeman.

The basic idea of play is to collect the blue Ideya balls scattered throughout the level and return them to Ideya collection points. This is mainly achieved by



NIGHTS features numerous secret levels – here you can enter one through the stone door

Format:	Saturn
Publisher:	Sega
Developer:	Sonic Team
Price:	£40
Release:	Out now (Japan)

using the *NiGHTS* character to fly around the four set routes on each level. Freedom of movement is restricted to two dimensions when flying - *NiGHTS* can backtrack and fly up and down within the route, but he can't fly 'into' the level (although the game is displayed in such a way as to fool casual observers into believing this is possible). If his time runs out, *NiGHTS* will fall to earth and resume the identity of one of the children (the one that the player opted to play at the beginning of the game). On the ground, the children have complete freedom of movement but are vulnerable to attack by a floating alarm clock, something which ends the game.

Although *NiGHTS* has superficially simple collecting things' gameplay, in reality it's more complicated. Each child has only four dream worlds to complete, with a boss at the end and Wizeman as the finale to the fourth. At the end of each stage, the player is given a grade from A to F, a score dependant upon a number of factors including the time taken to complete the level, the number of extra Ideya balls collected and, most importantly, 'links'. A link occurs when *NiGHTS* flies over or loops around a consecutive series of game objects. These include floating rings, stars and Ideya balls. Completing levels with an average mark below C (including the grade for defeating the boss) will not allow the next level to be played immediately - the player can access it but must restart the game from that point to play.

It does not take long to get access to all areas in what in all honesty must be called a fairly small game.

NiGHTS can backtrack and fly up and down within the route, but he can't fly 'into' the level

However, Edge has had difficulty in consistently earning scores above C, suggesting strong replay value. The game also bears repetition because the player rarely feels that he has conquered any particular part of it - partly because the levels move so fast and partly because of the number of sub-levels and secret areas. *NiGHTS* also boasts an A-life system that is supposed to evolve the levels in subtle ways, although Edge has seen little sign of this. Strong Internet rumours persist that the game has a two-player split-screen option hidden towards the end although again no proof has been seen.

Sega's analogue pad makes a debut with *NiGHTS* and, although the game doesn't really need analogue control, the pad is an excellent addition to the Saturn's range of peripherals. Although not as striking as the N64's, the design is reasonably comfortable and easy to use. It is also compatible with existing software, adding a new dimension to games such as *Sega Rally*.

NiGHTS is a disappointment in some respects, however. The two children, whose complete freedom of ground movement was so vaunted by Sega, appear to take little real part in the game (if *NiGHTS* runs out of time and falls to earth as one of the children, the grade for that stage is automatically given as F), making comparisons with *Mario 64*, in effect, rather spurious. Similarly, although the seven levels (the children share the same fourth level) are well designed and graphically unrivalled, it does seem a rather low number to include on a system supposedly unencumbered by storage space problems (*Mario 64* boasts 15 levels with a vast amount of extras).

Sonic was a very focused game with a clear aim, making it easy to pick up and play. By contrast, a lot of



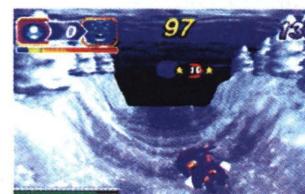
The perspective in which you view *NiGHTS*'s flying can alter several times within a stage, causing confusion

the time *NiGHTS* feels as if its gameplay has been made to fit within a set of technological displays of competence, with good 3D, excellent texture mapping, total freedom of movement for characters, fast polygon movement - selling points for the Saturn around which a game has been fitted. *NiGHTS* is an enigmatic game that the public might take to their hearts or

might reject out of hand. Either way, it's not quite enough to be an all-time classic.

Edge rating:

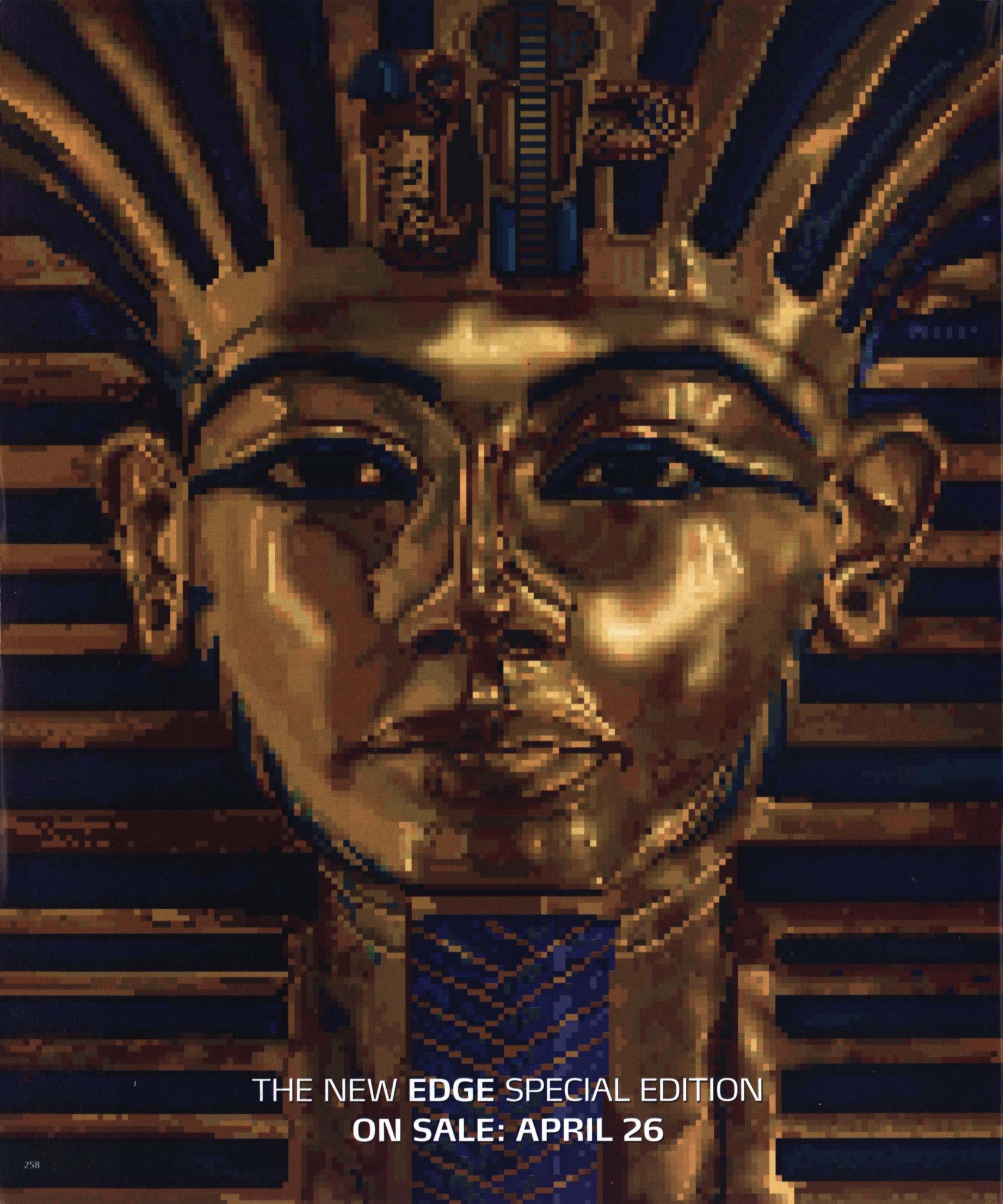
Eight out of ten



Walking around as Elliot Edwards is fun for a while but ultimately pointless (top). *NiGHTS* enters a bob-sleigh-style sliding section, reminiscent of the star collecting stage in *Sonic 2* (above)



Only by memorising the course (and where long runs of rings and/or Ideya balls occur) can the player build up links of any significant length - needed to progress through the levels



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